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# The Woodworker

Autumn 2015

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& Wood

## Tom Smith's *flight* of *fancy*

- Spline dovetail joint
- Simple jewellery box
- WorldSkills 2015
- Offcuts bonanza



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# Welcome



It's generally around this time of year that the pace of work seems to pick up a bit, in my case this has gone from flat out to borderline frantic. Everyone seems to be very keen to have their cupboards, wardrobes, etc. finished 'this week' or even sooner. I don't know why this should be, perhaps it's a deeply ingrained primeval urge to make a safe and secure dwelling for the winter months ahead, a need that still resonates with us after hundreds of thousands of years.

## Battleships in action

I guess it's not such a bad thing to be busy though, it's all too easy to forget those times when you're scratching around for work and generally feeling under-employed and surplus to requirements. This is a very good time of the year for woodworkers, however – not only is there the encouraging atmosphere of like-minded souls beaver away in their sheds and workshops, but there's usually a show or two around and all manner of offers and deals on new and used kit to be taken advantage of.

This reminds me that I took part in a Mini Maker Faire the other week; mostly for kids, it was a whole load of entertaining demonstrations and workshops to encourage young people into the wonderful world of making. A lot of it was hi-techery and computer-based, like 3D printing, interactive electronic games and such, but on my stand I was

proudly flying the flag for the lo-tech world of woodworking. It was the first outing for my battleship and submarine (see page 28) duo, and proved to be universally popular with both kids and adults. Between them they kept me busy all day long loading up the sub's torpedo and rebuilding the doomed destroyer. I was pleased (and very relieved) that both vessels kept on working the whole time, something of a tribute to the original WW designs I followed to make them.

## Social woodworking

Yes, there's little as satisfying as completing a job successfully, and then witnessing the favourable reactions of others, preferably complete strangers. There's also the opportunity for some good feedback to help you improve your own work and to make things even better next time. Any opportunity to meet and mix with other woodworkers is an opportunity worth taking, and I'd encourage everyone to be on the lookout for the chance to discuss their work with their peers either at a club or even just at a local trade outlet. While we all know people who would rather talk about work than actually do any, just remember – listen to your inner caveman and make sure you join in the making and preparation for the colder months ahead.

*Mark*

You can contact Mark on [mark.cass@mytimemedia.com](mailto:mark.cass@mytimemedia.com)



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Taking inspiration from a similar project originally published in 1964, Mark Cass puts his spin on a wooden submarine and destroyer

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In part 1 of his series on using offcuts, Robin Gates teaches us how to bring purpose to our woodworking – after all, waste not, want not! Make a maul and clogs, plus a guard and gripper

### 43 Flight of fancy

Inspired by the natural world, Tom Smith creates realistic looking images of various birds, animals and flowers. Here he takes us through the stages for creating one of his magnificent barn owls



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### 67 A simple jewellery box

Ian Wilkie has always encouraged his grandsons to come into his workshop and see what he was making, even when they were quite small. Here are the guidelines Ian's grandson followed as he went about making a jewellery box for his mother



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A few issues ago we reported from the national finals of the WorldSkills selection competition but now, after the winners have been announced, we bring you all the details and consider what goes into making an award-winning tradesperson



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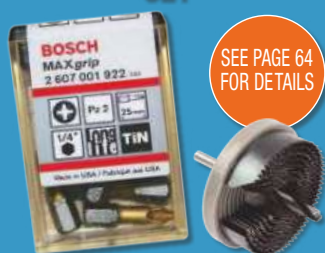


# 28 Submarine commander



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FOR DETAILS

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## TURNING

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# The Woodworker & Woodturner

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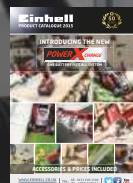
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# In brief...



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In the spirit of establishing and maintaining order in the magazine then, we've started this new AOB column as a place for general things, random stuff and the occasional announcement. The experienced reader may notice one or two minor changes this issue and probably for a while yet to come. There won't be anything radical, startling or even controversial going on, just more of the standard mix of projects, technical tips, tools and features.

## Going electronic

One change which has affected us all is the ease with which we can all now communicate electronically. My first request then, for anyone

thinking about writing in with an advert for our Marketplace page, is to try out the email option as this will make life much easier. We'll still process the written page forms, but if you could go digital from now on, that'd be great.

## Get in touch

I'd also like to remind everyone that I'm always interested in hearing of your woodworking experiences. Unusual things that happen are always enjoyable to hear about, and so are unusual tools or equipment, especially if you have a photo to go alongside. Contributions are forever welcome, and remember, this magazine belongs to all woodworkers, whoever and wherever you are; it's down to us to keep it going for the future generations to come. For news of unusual kit, general woodworking amusement, stories of wonderment, or just anything you want to share, email [mark.cass@mytimemedia.com](mailto:mark.cass@mytimemedia.com). For Marketplace adverts, use: [thewoodworker@mytimemedia.com](mailto:thewoodworker@mytimemedia.com).

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BY MATTHEW WHITELY

# Multi-functional simplicity

**Furniture making course graduate Matthew Whitely takes us through the steps for making one of his final projects and shares his secrets of construction, problems encountered and ideas for its improvement**

I have just graduated from the Fine Woodwork Diploma, a furniture making course at the Building Crafts College in Stratford. From September, I am going to be continuing on at the college for a further year as a 'Maker In Residence' to develop my furniture making business. The wide chamfer table was designed and built as one of my three final projects.

## Concept

We were given free reign in terms of concept, the only restriction being that the primary material should be wood and that the project should be achievable within the

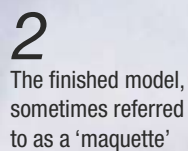


All the components for the wide chamfer table

time limit and with the facilities and space we had available at the college. I started by setting myself a brief to create a table that could function as either a desk or a small kitchen table to seat four people. I was also thinking that the table could be a prototype for possible batch production at a later date. I decided that the table would be knock-down so it would be easy to move and to pack for storage or delivery.



All the tools and equipment needed for making a 1:4 scale model.  
The benefits of making a full-size mock-up are considerable, and avoid disappointment



While designing the table, I had been looking at some Danish mid-century modern tables, in particular Finn Juhl's 'Kaufmann Table' and Hans Wegner's 'C327 Table'. I really admired the way that the table tops had fine, floating edges and decided to try and replicate this feature in my design. To achieve a very fine edge while keeping the table top strong and rigid across its span, I came up with the idea of chamfers that would widen in from the fine edges to a thicker, stronger middle. I liked the way that these chamfers spread out from the top of the leg's frame like the head of a concrete column supporting a building or an elevated carriageway. The table top was originally going to be solid wood, but the form I had come up with suggested a more industrial, plasticky look. I decided to paint the underside and use a wood veneer for the surface.

I produced lots of sketches to work out how the table frame would be constructed





3 The ends of the rails are profiled on the router table to form the concave necessary to meet the legs

and how it would support and attach to the table top. A key influence was the 'Span table' by Wales&Wales and Joined+Jointed, I wanted to recreate the effect of these strong self contained elements that come together to create a harmonious whole. I broke the frame down into two end 'A' frames and three rails and decided to bolt through the frames into the rails making a feature of the exposed bolt heads. I wanted to avoid the kind of hidden fixings that would usually be associated with cheap flat pack furniture.

Once I had the basic design, I consulted ergonomic guidelines in some furniture making books and made a full-scale mock-up in pine and MDF to make sure that the legs and rails would allow adequate room for four adults sitting around the table, **photo 1**. I also made a 1:4 scale model, **photo 2**, to give a better idea of how the final table would look from various different angles. I combined all this information to produce the final technical drawings for the table.

### Materials

I had really liked the colour and grain of the American white ash we had used at the college on an earlier project so decided from the beginning that the solid frame would be made from ash. To maintain a clean look to the forms I had designed, I selected boards that were all lighter in colour and had no 'olive' patterning.

I decided to make the top out of layers of MDF, that I could shape to create the wide

chamfers, then finish by gluing a veneer for the top surface and painting the underside.

In my design I had these four distinct areas of material or colours: the leg frame, the table surface, the table underside and the bolt heads. Taking the ash frame as a starting point, I took samples of finished ash with me to select veneer. I found a really interesting European walnut veneer that had been cut from a board close to the edge of the tree, so it had all the warm, golden orange colours but almost none of the

black, purple, dark brown colours that you would usually get with European walnut.

Once I had finished samples of the ash frame and the walnut veneer together I selected colours for the table underside and the bolt heads to complement them. I decided on strong colours as you would only see a thin stripe of the table underside and the bolt heads would appear relatively small against the ash rails. I ordered a heavy-duty Rustoleum paint mixed to the specific colours and packaged into aerosol cans.



4 Precision drilling is required to ensure the rail bolts and threaded inserts will always line up



5 Multiple dowels provide a large gluing area for necessary strength

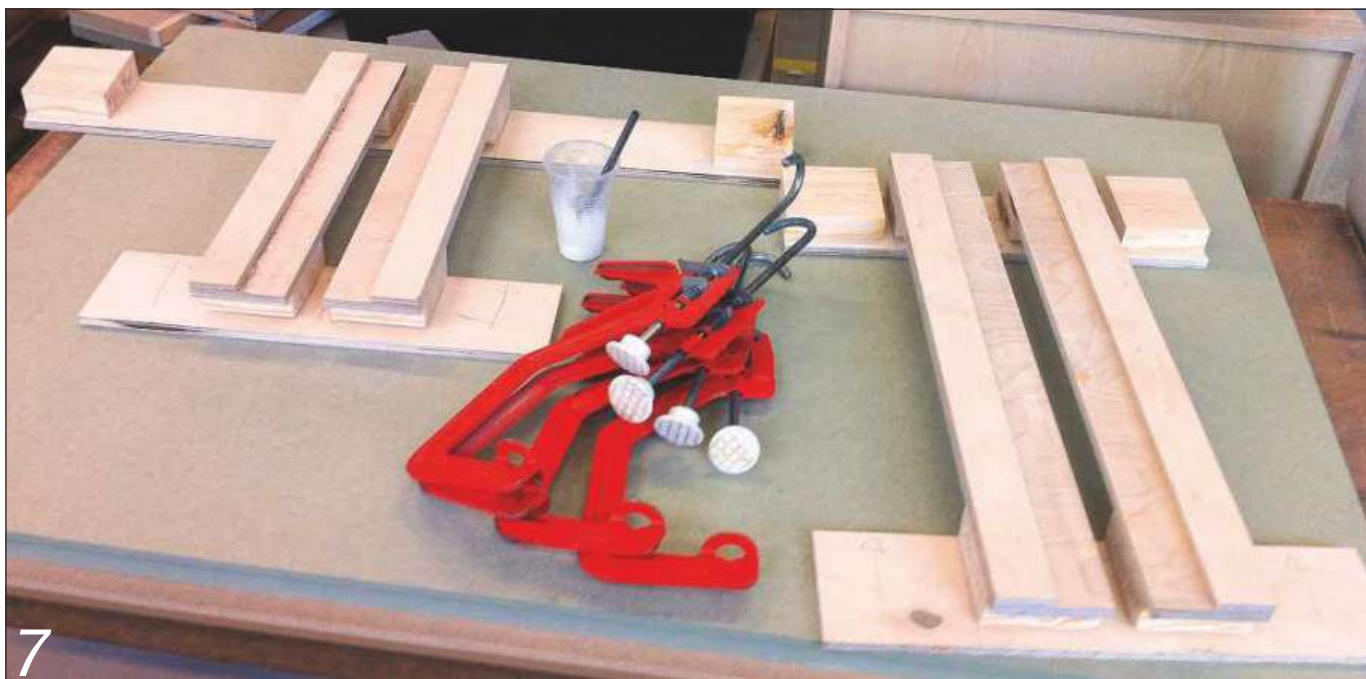




The end frames are clamped up; note that the clamp blocks are also profiled to improve grip and reduce glue-up stress!

### Construction

The end 'A' frames were put together with PVA glue and dowels. To achieve a tight, clean join between the rails and the round section of the legs I used two large, matching router cutters, **photo 3**. A bull-nose cutter to create the round section of the legs and a round-nose box core cutter across the ends of the rails. The rails that run between the two end frames have dowels (for location) and threaded inserts (for the bolts) fixed into either end. I had to make a number of drilling jigs to ensure that all the holes for the dowels and inserts were drilled in the right locations and angles and that the components lined up with each other correctly, **photo 4**. The cross rails are



It's worth making the time to custom make routing aids instead of relying on random scraps from the workshop floor!



Here the chamfer routing jig is seen in use at the start of a bit of a routing marathon

also reversible, so the positions of dowels and inserts had to be consistent, **photo 5**.

The top was made from three layers of 9mm MDF, laminated together with a layer of walnut veneer on the top surface and another balancing veneer sandwiched between the top and middle layers of MDF. I laminated the layers together with PVA glue in a vacuum press bag.

I created two router jigs, **photo 7**, which would run against the edges of the table top and hold the router at the right angle to produce consistent wide chamfers along all four sides of the table. I used a router template to round the table's corners. The underside of the table was finished with an orbital sander and by hand with sanding blocks, then painted with aerosol spray paint.





9

After the routing, the underside was sanded after a coat of a thin resin to seal and protect against paint bleed later

### Problems encountered & resolved

Because of the veneer laminated on the surface, I knew that I was going to have a problem with the edges of the table warping when I removed the material to create the chamfers. I decided to make up the full thickness of the table top from three pieces of 9mm MDF, which meant I could add a balancing veneer in between the top two layers. This extra veneer also served to strengthen and support the very thin edges of the table top.

Where I had removed so much material from the MDF, I was left with large surfaces of exposed MDF, which can be tricky to finish successfully. To solve this problem, I started by using a higher grade of moisture resist MDF, which is denser. With a little experimentation I found a very thin epoxy casting resin, which would soak several millimetres into the exposed surfaces, and could be sanded back to a very smooth, even and non-absorbent finish. This resin also served to strengthen and stiffen the thin edges of the table top.

When I did initial tests soaking the resin into the MDF, I found that even where I had masked off carefully the resin bled through from behind into the edges of the veneer,

photo 9. I solved this by applying several coats of oil to the veneer after shaping the table top, but before soaking the resin in. The oil, once dry, acted as a barrier to prevent the resin bleed through.

Because I had to do quite a lot of work on the top after oiling the surface, it managed to pick up a few bad scratches. Once the table underside had been painted, I came back to the veneered surface and scraped and sanded the scratches out. When I applied a new coat of oil, it settled and dried unevenly on the surface, where I hadn't sanded the veneer back far or evenly enough. To remedy this I used an extra fine grade wire wool to work into the glossy, raised areas of wax until the surface was even again and it could take a final coat of oil.

### Special finishes

For the table frame I used an Osmo Raw Polyx Oil, which contains a little white pigment, to retain the light, clean look of the ash. For the walnut veneer on the surface I applied several coats of Osmo Top Oil, which would provide a harder wearing surface and is a fairly neutral oil, so would enhance the unusual colours in the veneer rather than yellowing or darkening them like a Danish oil would.



10

After an enthusiastic paint job, the frame bolt heads provide a colourful contrast detail to the green of the table edge



The completed table

To create the very smooth, even surface of the underside of the table, I first soaked a thin epoxy casting resin into the MDF, which I could sand back to a very smooth finish. I then used two coats of an industrial Rustoleum aerosol spray paint, which was self priming, straight onto the prepared surface. The stainless steel bolt heads were cleaned with white spirit, keyed with fine abrasives, masked off and painted with a similar paint in a contrasting colour, **photo 10**.

### Conclusions

Formally, I think the table is a success. It has simple, clean lines with some subtle, surprising details in the shaped underside and coloured bolt heads. As intended, it functions well as both a desk for a single user or a small kitchen table for four. I also managed to achieve a good quality of finish throughout; the join between the veneer and painted surface is crisp and even, the inserts and bolts line up nicely and the cross rails are reversible and interchangeable.

As a prototype for batch or mass-production it is not completely successful and the design and processes will need refining to make production more efficient. The biggest problem is the complexity of forming the table top. There are several time-consuming processes and lots of hand finishing that would make the unit cost per top prohibitive. I have been thinking about the possibility of casting the top and then gluing the veneer to the top surface after it has been polished or finished. To prevent the top warping, I would need a combination of a strong, stable casting material and an adhesive for the veneer that wouldn't move or shrink.

Although I am pleased with the way the bolts look against the ash rails, they also need a little refinement. The paint I used for the bolt heads is not strong enough to stand up to many scratches from the Allen key. With a large enough scale of production, I would look to having the bolt heads specially manufactured with integral colour. The other problem is that it takes a little too long to tighten all the bolts. This could be solved by carefully tuning the lengths of the bolts and the depth of the inserts, but it may be that a different type of fixing altogether would offer a more elegant solution.

Another option to simplify production would be to have the whole table frame glued together as one component. It would mean that the table wouldn't pack down as small for storage or delivery but it would still be easy to move around in two parts and would make assembly quicker and easier. **WWW**

The end frames, minus the table top







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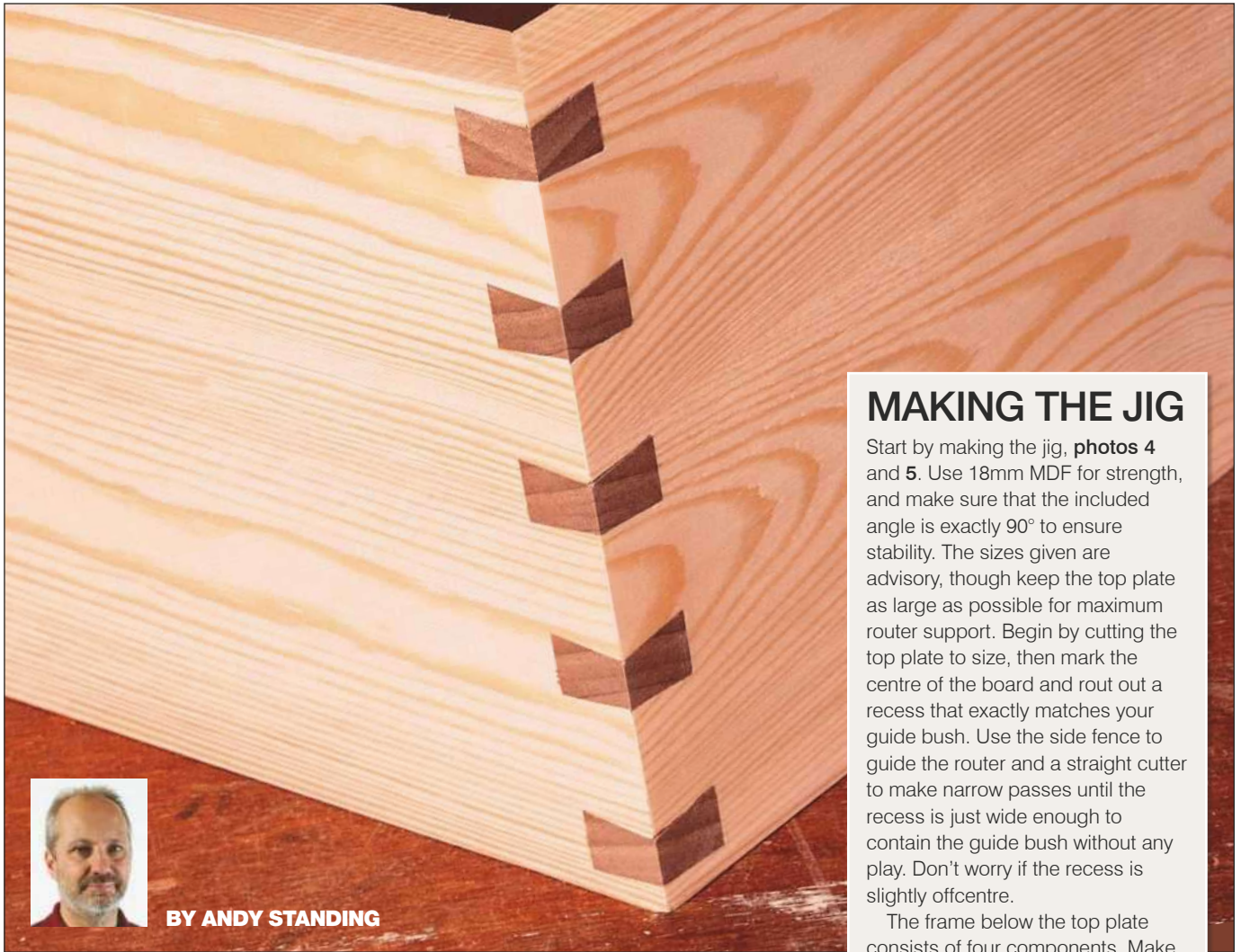
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**BY ANDY STANDING**

# Boxmaking brilliance

**Andy Standing shows you how to make the spline dovetail joint as well as a simple jig. Popular with box makers, this attractive joint is known for adding strength and decoration**

**T**he spline dovetail is a joint that can be used both for strength and decoration. It can be especially attractive on small carcasses and is particularly popular with box makers. It is simple to make and the only tools needed are a router fitted with a dovetail cutter and a tilting arbor table saw. However, you do need to make a simple jig first. This can be modified to suit your particular router/guide bush combination. The design here uses a 24mm guide bush. [www](http://www.getwoodworking.com)

## MAKING THE JIG

Start by making the jig, **photos 4 and 5**. Use 18mm MDF for strength, and make sure that the included angle is exactly 90° to ensure stability. The sizes given are advisory, though keep the top plate as large as possible for maximum router support. Begin by cutting the top plate to size, then mark the centre of the board and rout out a recess that exactly matches your guide bush. Use the side fence to guide the router and a straight cutter to make narrow passes until the recess is just wide enough to contain the guide bush without any play. Don't worry if the recess is slightly offcentre.

The frame below the top plate consists of four components. Make sure that the angle between the supports is exactly 90° and that the top plate sits on it at exactly 45°. Once the boards have been cut to length and mitred, cut a slot in the mitred ends – make it the same width as the guide bush slot and about 40mm long. This is where the cutter will pass through the sides of the box, so you need good clearance.

Glue and screw the jig tightly together. Pre-drill the MDF to avoid splitting the core and countersink the screws so that they won't foul the router.

The dovetail splines are inserted through an assembled mitre joint, so the first step is to assemble the joint and glue it up. Use biscuits to help hold the joint in alignment.

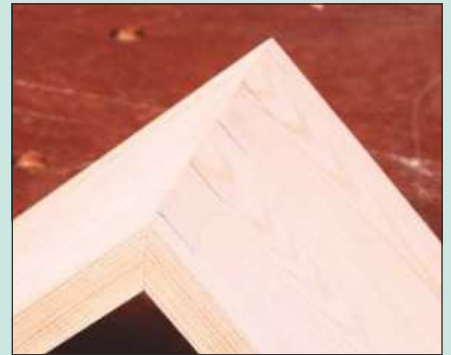




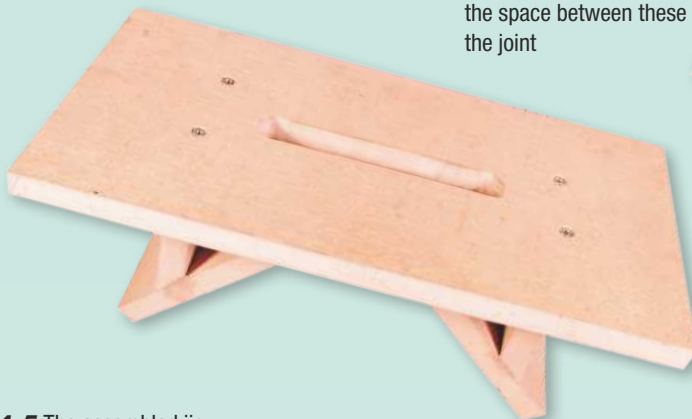
**1** Clamp your mitre joint in the bench vice so that it faces upwards



**2** Mark out the dovetail spacings across the joint. Keep the outside splines away from the edge, so start by marking a line about 10mm in from each edge for the outside pair, then divide the space between these lines equally across the joint



**3** The marked workpiece is now ready for machining



**4-5** The assembled jig



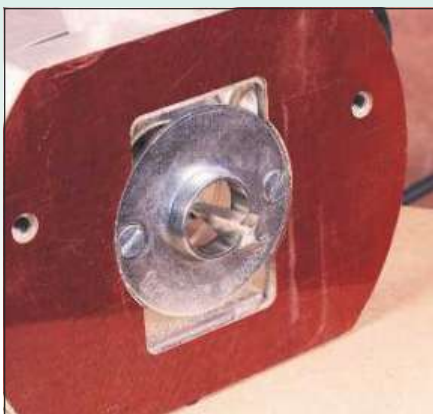
**6** In order to set up your jig accurately, make a setting bar. This should fit snugly in the guidebush groove and have its centre clearly marked



**7** Insert the setting bar through the jig and line it up on the marked lines



**8** Clamp the jig in place



**9** Fit the router with a guide bush and dovetail cutter

**10** Stand the router on the jig and plunge the cutter until it just touches the top of the corner joint. Set the depth about 10mm below this. Pull the router back, plunge it to full depth and lock it down. Start the machine and run it through the joint. Switch off without releasing the plunge lock, then re-set the jig and repeat for all the marked positions across the joint





**11** After machining, the joint should look something like this



**12** Remove the dovetail cutter from the router and set a sliding bevel to match its angle



**13** Transfer this angle setting to your table saw. Please note that the crown guard has been removed for clarity



**14** Set the rip fence a little wider than the base of the dovetail, and with all guards securely in place, rip down both sides of your timber to make the splines. Make up a long length, and trim it to size later



**15** To adjust the fit, lay the timber on its side and with the blade still tilted, take shaving cuts off the bottom until the piece will just tap into the dovetail sockets with a light hammer



**16** Cut the splines into short lengths, apply a little glue and gently drive them into place with a hammer



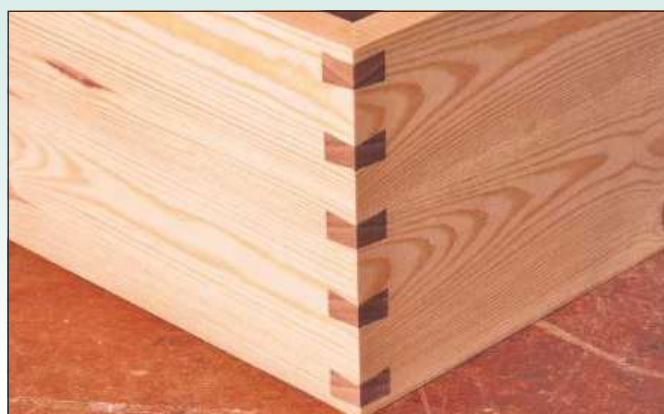
**17** Here you can see the oversize splines in place



**18** Trim off the waste with a flexible pull saw; this allows you to trim right up to the edge without damaging the workpiece



**19** Finally, clean up the joint with a plane then fine abrasive paper



**20** The finished spline dovetail joint





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BY MARK CASS

# Submarine commander

Taking inspiration from a similar project originally published in 1964,  
Mark Cass puts his spin on a wooden submarine and destroyer





**R**egular readers may well recognise this light-hearted project from earlier this year when we featured the original version in our 'Archive Page' feature. Spring-powered, the destroyer will 'explode' when accurately struck amid ships by a torpedo fired from the submarine. Made from scraps and oddments that most workshops will have lying around, it's a fun job but actually offers quite a challenge for the home woodworker.

### A mix of springs

My first step was to source a few springs. The original article mentioned a letterbox spring (basically a cranked torsion spring with 'legs') for the destroyer, and a simple compression spring, **Photo 1**, to power the



A spring 'corral' or similar is recommended to keep all of the small components from getting lost at sea

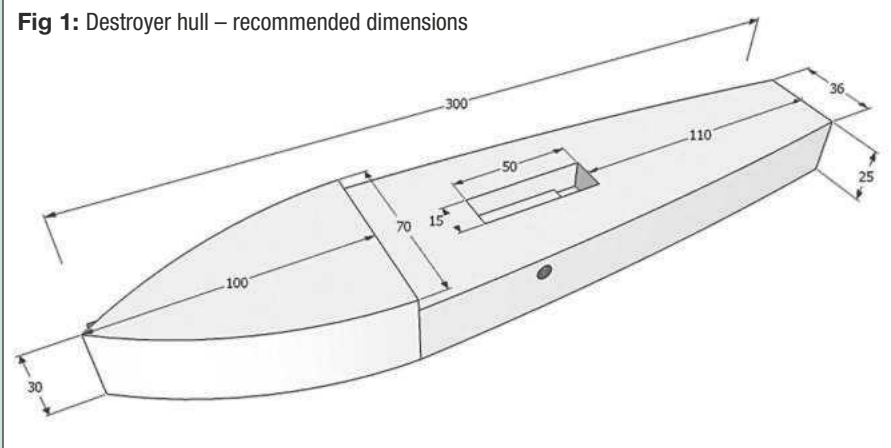
torpedo firing mechanism on the submarine. I bought a selection mix from my local ironmonger as they weren't expensive and, as the job was a bit of an experiment, it would give me some useful choices.

### Destroyer

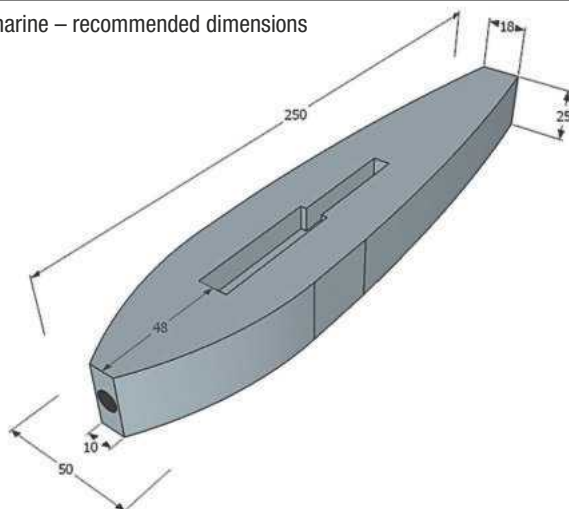
Sourcing the material for the hull of the destroyer was as straightforward as rummaging about near the chop saw; I expect most of us have got a variety of short lengths tucked away somewhere. I'd suggest hardwood, but pretty much anything will do, as long as you think you can form a neat recess into it. I made a rough practice hull first; this enabled me to see what the exploding mechanism needed and how it would work. Armed with this knowledge, I was able to accurately mark out the spring housing and the firing rod hole in my oak blank, **Photo 2**. A bit of work with a mortise chisel later, and I was able to fit the spring to its required depth. The spring is simply anchored with a long panel pin from one side or with two from two. The hull can be drilled and the anchor pins driven in quite easily, but maximum accuracy must be employed for the positioning, length and depth of the trigger stop pin.



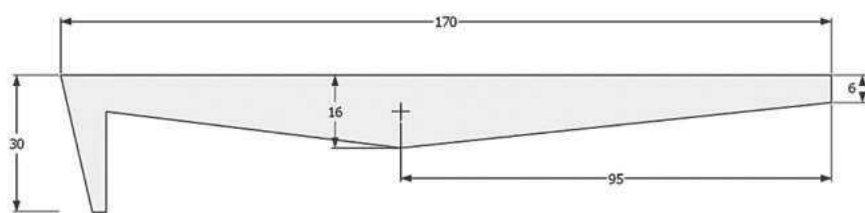
**Fig 1:** Destroyer hull – recommended dimensions



**Fig 2:** Submarine – recommended dimensions



**Fig 2:** Submarine trigger bar



The trigger stop pin is responsible for holding the longest leg of the torsion spring, and effectively keeps it 'cocked' and primed to go. Its release – leading to the effective destruction of the ship itself – is brought about by the firing rod being driven into the spring housing by the power of the torpedo striking the ship's hull and pushing the spring leg beyond the pin. It's important to get this bit right, and I would strongly recommend a softwood trial. If you're careful, you can punch the trigger pin deeper into the hull with a punch or drift, but it's tricky to get it further out if it goes too long.

### Making the ship

Once you're happy with the workings of the wrecking mechanism, you can concentrate on the actual making of the ship itself. Tackling mine, it wasn't long before I realised my shortcomings as a naval architect, but I managed to keep it looking vaguely nautical with some of the features I remembered from old movies of the 1960s. I sawed down to the lower deck on the bandsaw, then shaped the hull to something approaching a boat shape, **photo 6**. Then it was just a case of covering the spring housing with a lightweight ply deck and piling on the superstructures and warship features.

I went for a simple bridge, some kind of tower arrangement, a rack of depth charges and a couple of gun turrets, **photo 7**. The rear gun was made from an offcut of 28mm dowel, and a piece of mop-stick handrail made the larger bow guns. It's best to drill and glue the thinner 6mm dowel for the guns into an over-length piece of 'turret' and cut it down afterwards. This prevents the short-grain above and below the guns from chipping out as it's drilled. All the other pieces simply rest in place for as long as the destroyer remains un-hit.

Probably the trickiest bit to make on the ship is the firing rod, **photos 5a, b & c**. Referring back to the original job published in 1964 (and already 40 years old at the time), I saw that the firing rod protruded from the hull and was probably hand operated in its original guise. Responding to reader requests for an naval adversary, E. F. Scott designed and made the submarine to shoot a dowel torpedo, but you'd have to be a real crack shot to hit the tiny target of a rounded dowel tip.

I felt the need to make this a bit bigger and so attached a small plate to my own firing rod; this lasted for a few fast and hostile encounters before coming adrift and needing to be refixed. Clearly vulnerable, and with my Mini Maker Faire looming – during which I expected both vessels to



**2** The boat blank, carefully marked and drilled for the firing rod



**3** The mortise housing is chopped out for the torsion spring



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4

Drilling a guide hole for the one of the pins, which will keep the main spring in position



5a



5b



5c

Detail of how the firing rod clears the spring leg of its retaining pin



6

Shaping the destroyer's hull; note use of offcuts to mark out the starboard side



8

The superstructure is now in place; note hole for firing rod



9

New improved firing rod with robust 'show' spare on left

be constantly deployed by a day's worth of kids and adults – I felt the need to make a replacement or two, **photo 8**. Joining a small target to the end of a smaller dowel is pretty demanding, and the only way to go is to pilot the dowel before screwing into it, **photo 9**. Again, a trial run is recommended.

### Submarine

On the face of it, this job looked to be on par with the destroyer in terms of technical difficulty, but my first advice here would be to make a practice run of the missile firing mechanism. I tried out a variety of compression springs to fire a dowel torpedo, **photo 10**, and was wryly amused when an early version knocked out one of my strip lights overhead.

Once you feel like you've mastered the spring housing, you can replicate it on a submarine-sized blank. Again, hardwood is preferred, and, as well as being more robust, it allows for greater accuracy. I'd recommend drilling the torpedo 'tube' before shaping your submersible, **photo**



7

The gun turrets are best drilled over-length then trimmed down afterwards

**11**, and making sure it enters the spring housing just where you want it. The hardest part for me was making the trigger mechanism. With a fair bit of slack all round, and given the general crudeness of the device, a sophisticated solution was always going to be out of my reach, despite trying. After consulting the original document, I decided to go for the tried and tested method described therein. This involved pivoting a flat brass bar inside the sub's conning tower, one end of which simply hooks over the washer on the end of the firing pin while the other waits in mid-air for the commander's trigger plunger.

I used a bit of thin ply to estimate the size and shape of the trigger, and simply tried and tested as to where it all should be positioned. When I was fairly happy that it



might work, I cut and shaped a leftover piece of brass plate on my bandsaw and filed it all up afterwards. Brass is definitely the best option for this key part of the job, sufficiently hard and rigid but shape-able with basic tools. When complete, the trigger bar went into the conning tower and was anchored at its fulcrum point by a trimmed 50mm panel pin carefully positioned and drilled. I fitted up an oversize deck of thin ply and cut the slot through which the trigger tip would pass to engage the firing pin when cocked against the spring. I had to experiment a little until I found the optimum position for the tower and hence the trigger tip/spring end concurrence, **photo 13**.

The whole sub could now be shaped; the conning tower screwed into place and the deck temporarily fixed into position. There was a nervous moment or two when the first couple of firing attempts didn't go entirely to plan, and a spot of extra filing on the trigger tip was called for. Finally it all seemed to be functioning as planned, and it was then just a case of screwing



**10**  
Torpedo firing mechanism softwood trial and hardwood marked out ready. Note wedged washer to reinforce spring-stop shoulders

**11**  
Drilling the torpedo 'tube' – accuracy is recommended



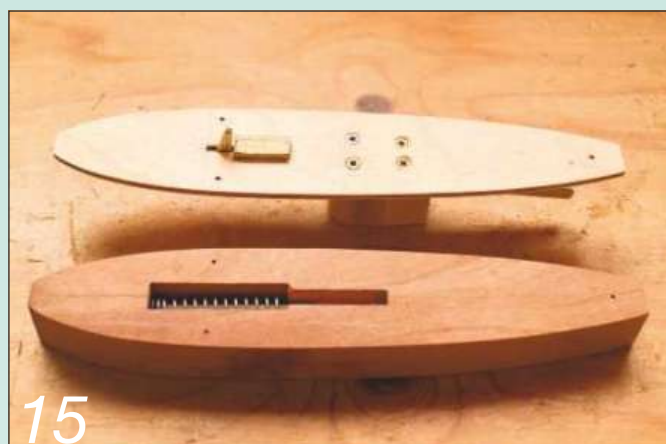
**12**  
Conning tower roughed out and slotted for the brass trigger bar



**13**  
Working out the optimum trigger position by trial and error



**14**  
The sub's component parts; note small block to retain firing spring



**15**  
Detail of washer-tipped firing pin; care is needed to avoid a split

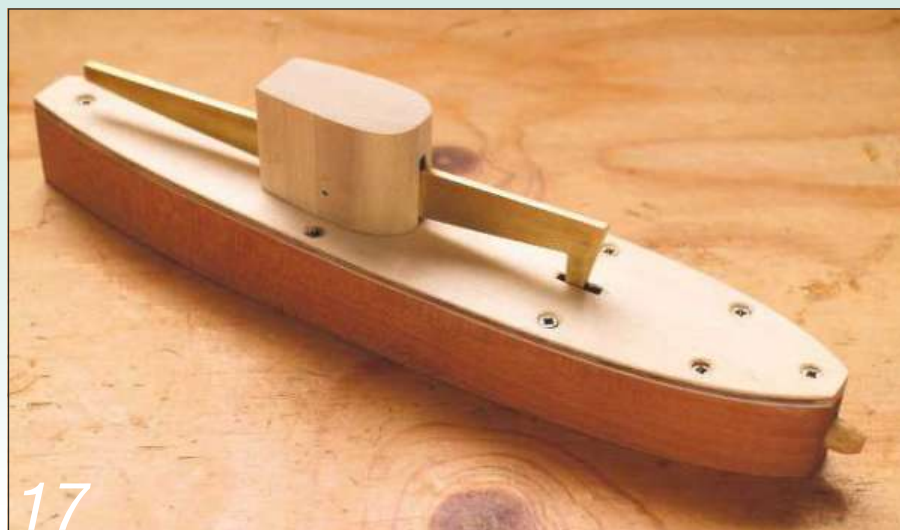
**16**

Firing spring assembly. Note washer screwed into dowel end



the deck down and preparing a couple more torpedoes from 8mm dowel (ends reduced to give room to the trigger tip).

All in all it's a satisfying project, especially when you crack the submarine's torpedo launch, and particularly gratifying when the destroyer can be 'sunk' from range with the first shot, **photo 17**. There's no end of scope for paint and decoration, but just be careful not to gum the workings up with runs and drips. Bon voyage and happy hunting. [www](http://www.getwoodworking.com)



**17**  
The finished submarine, primed and ready for action



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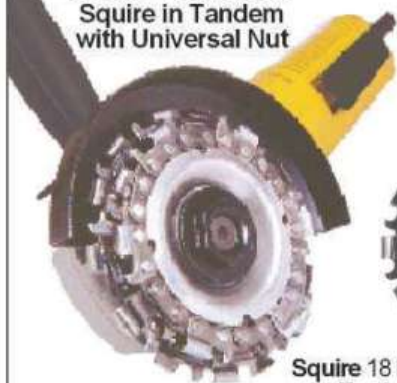
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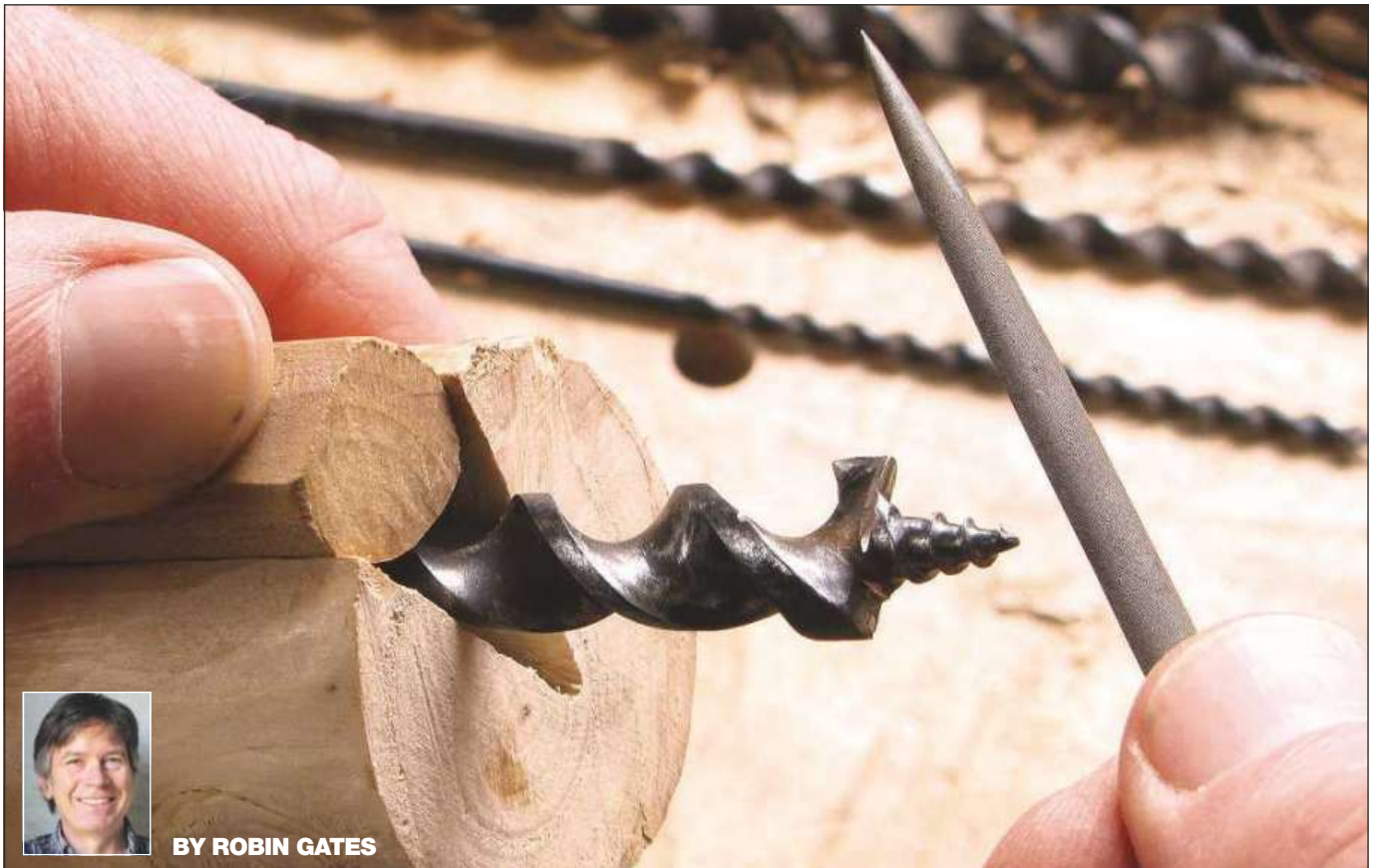
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BY ROBIN GATES

A hand-held auger clamp eases sharpening with a file

# Part 1

## Waste not, want not

**In part 1 of his series on using offcuts, Robin Gates teaches us how to bring purpose to our woodworking – after all, waste not, want not!**

**E**very so often my woodworking grinds to a halt under the sheer volume of clutter on the bench. The tools are easy to clear – they go back to where they came from. It's the timber offcuts that are the problem; they refuse to stand with their siblings that are still two yards long and neither do they sit well on shelves designed for better things. So they remain on the bench, daily being shoved this way and that like the building bricks of a toddler too distracted to put his toys away.

These days, however, I do have a way of dealing with this recurring problem. When I can't slide a block plane without triggering an avalanche, I spend an hour making things solely from the offcuts. Woodworkers have been doing this since the year dot I know, but perhaps there's something in these ideas to bring a sense of purpose to some offcuts of your own.

### No plan

Making things from offcuts isn't as easy as it sounds. You don't start with a plan, you start with a heap of timber allsorts, which you felt sure would be useful one day but which now appear utterly useless. If you have an open fireplace, then the best thing to make of the situation might be heat. But for an offcut which is all that remains of a happy project or a bough lugged home on my shoulder, I find this a cruel fate. Pieces like these can be snapshots of treasured moments as difficult to part with as family photographs.

The key criteria to keep in mind with offcuts are simplicity and usefulness. Forget carving the Elgin Marbles into an odd foot of skirting board, the objective is merely to turn a piece of space-filling scrap into something handy with the minimum of delay and effort.



1 Maul hewn from a cherry log

## Maul and clogs

A worthwhile project if you have a hardwood log lying spare is a maul, a cylindrical one-piece mallet, **photo 1**, used for whacking everything from froes to mortise chisels and tent pegs. Having sawn one-third of the way through the log all round, you apply the axe to the end-grain and split away the waste to leave the handle, which only requires finishing with a pocket knife. I made this one from a piece of cherry. After long use on the narrow back of an iron froe, it eventually grew battered and ineffective, at which point I consigned it to the wildlife garden for insects to set up home and simply made another. The maul

is a model example of the eco-friendly disposable tool.

I use my old Record G-clamps constantly. They're so solidly engineered and reliable, real bullet-proof technology, but my glee in using them to calm a glue-up panic can be tempered by disappointment when I slacken the jaws and find ugly 'half crowns' embossed on my timber surfaces. One answer is to insert wooden spacers beneath the jaws, but how fiddly is that, rummaging for convenient blocks when you are already juggling the timber and clamps and have the glue bottle wedged between your teeth. You just don't seem to have enough hands. A better answer is to prepare the jaws in



2 Clogs for a G-clamp, bored with a centre bit



3 Clogs protecting the work while clamping

advance with close-fitting wooden clogs, **photos 2 & 3**.

The offcuts I used for these were pieces of 2 × 20mm batten left over from the wall plates supporting a work top. A 44mm centre bit bored part way through the timber gave the clogs a snug fit on the jaws so they would be ready for action the next time I needed to clamp.

## Guard and gripper

There are two mistakes I know of with a screwdriver. One is to use the wrong size blade, which results in mangling the screw head; the other is to let the blade slip from the slot and stab the timber. I excel at both.



4 The screw guard protects the work if the blade slips from the slot



5 Elm nail gripper keeps fingers at a safe distance



Give me a pump-action Yankee screwdriver and the work will look like Lady Gaga has danced across it in her steel-tipped stilettos.

I'm tackling the first mistake by re-grinding my old screwdriver tips to fit the most commonly used slotted screws, but for the second fault, I've taken to using a screw guard when driving screws home in delicate surroundings, **photo 4**. You could make this as large or small as you need but for mine I used a scrap of elm around 100 × 60mm. Just make sure the hole clears the head of the screw or you'll fasten the guard to the work.

While I'm confessing I'll own up about nails too. The smaller they are the more likely I am to very precisely clout my fingers with the hammer when getting them started. Again, a scrap of elm came to my rescue in the shape of a nail gripper, a narrow piece about 12 × 125mm with a tapering slot sawn in one end. I find that extending the cut beyond the slot puts extra spring in its jaws. Now with the nail jammed in the slot my fingers holding the gripper are out of harm's way and I can also see the point of the nail more clearly to position it better. The gripper also works when nailing in a tight corner and when hammering nails overhead. Elm is suited to the task because its crossed grain resists splitting, **photo 5**.

### V for victory

Hand-powered augers are great for boring deep holes but they're hard work if the spurs and cutting lips are dull, as I discovered when boring a tunnel to house the flex of a table lamp. When I came to sharpen the unwieldy auger, I found it uncomfortable to hold bare-handed and awkward to grip in the bench vice,

The answer was to make a hand-held auger clamp (see lead image), in this case from a keepsake piece of trunk from our Christmas tree but you could use any round-ish offcut, **photo 6**. All it needs is a 'V' channel ripped along its length, a fraction wider than the auger, and a length of dowel planed with a cam-shaped section, which locks the auger in place under thumb pressure. With this device you can comfortably hold an auger as close as required and in good light by a window, easily adjusting the angle to place the file where needed.

Another handy block with a 'V' channel has its origins in a pallet found broken on the beach like a wrecked ship. Having relaunched a plank or three and bombarded them with stones, I hung onto this block for the pleasure of bowling it at nothing on the way home, then kept it almost by accident.



6 A pallet block with a 'V' channel holds round work when planing end-grain



7 The plywood swarf catcher slots around the hand-powered grinder



8 The swarf flies mainly downwards towards the operator's feet



9 A few turns of the wheel generates a lot of swarf



10 Spruce offcut marked with a 1 in 8 gradient for folding wedges



11 Making wedges is also useful practice with the hand saw

For months it served at the bench merely soaking up the saw cuts and chisel blows, but then one day, when struggling to plane the end-grain of an irregular cylinder, I ripped a 'V' channel in one face and it supported the work perfectly. Used in pairs, and of somewhat better quality, a similar thing turns up in old texts under the name 'joiner's saddle', used when planing the long grain of table legs and spars.

## Swarf catcher

My hand-cranked grinder is invaluable for

restoring the edge of old plane and chisel blades but its coarse wheel generates a lot of swarf. Most of this is propelled downwards, covering my shoes and the floor in a grey mist of steel.

All that's required to avoid such a mess is a small plywood offcut, **photo 7**. At around 125 × 330mm, with a 63 × 125mm cut-out to fit around the wheel, and held in position by the grinder's built-in clamp, it makes a highly effective swarf catcher, **photo 8**. But I still have to watch out for the minute pieces of hot metal which lodge in

the wheel and are thrown out in all directions – eye protection is imperative here, **photo 9**.

## Folding wedges

Splitting, lifting, levelling, clamping – the wedge does it all and symmetrical pairs are especially adaptable. Each pair is cut from a single block so they have identical slopes. When the pair is re-assembled, their outer faces lie parallel and by knocking the wedges together or apart, the thickness of their overlap can be adjusted as they slide over each other. For closing up a space and applying controlled force where needed, this simple device is a real joy to use.

Having experimented with slopes that were too steep to stay put and too shallow to knock apart, I've found a good compromise of security and control is offered by a slope of about 1 in 8, **photo 10**. For my offcuts of 69 × 41mm spruce this required a rise of 20mm over 150mm; if using a bevel gauge, set it to 7° to achieve a similar slope. Have the length of the wedge running with the long grain or the thin end will be prone to snapping off and resist the urge to clean up the sawn faces because their friction improves grip. Chamfering the corners with a block plane lessens the risk of splintering when persuading the wedges into position. My current bench is without a vice but I've found that with folding wedges, I can clamp a board very securely on its edge for planing. Now I'm wondering if a vice is even necessary... [WWW](#)



12 Folding wedges supporting a board on edge for planing. Who needs a vice?

## NEXT MONTH

Robin looks at more ingenious uses for your offcuts, including edge guards and bench hooks



A new panel sizing saw specifically designed for the smaller workshop! The new Scheppach Forsa 3.0 offers 1.6m panel cutting capacity with the advantage of a full 87mm depth of cut for solid timbers. Like all Scheppach Precisa and Forsa sawbenches the Forsa 3.0 is bristling with German technology from head to toe. Designed specifically for those who where floor space and budget are foremost in their considerations. Micro scale with settings to within 1/10th mm on the rip fence included. Available in either single or three phase electrics.



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Model	Product Group Series	Specification Includes (as per quoted price)	Mc HP / Scorer / Volts	Depth of cut & length of stroke	Price Exc VAT - Plus Carriage	Price Inc VAT - Plus Carriage
Forsa 3.0	Professional	Inc Professional STC + TWE	5.2 / - / 415v	87 mm x 1.6 m	£2,166.67	£2,600.00
Forsa 4.0 - P2	Professional	Inc Professional STC + TWE + TLE + Scorer	6.5 / 1.0 / 415v	107 mm x 1.6 m	£2,995.00	£3,594.00
Forsa 4.1 - P2	Professional	Inc Professional STC + TWE + TLE + Scorer	6.5 / 1.0 / 415v	107 mm x 2.1 m	£3500.00	£4,200.00
Forsa 8.0 - P3	Professional	Inc Professional STC + TWE + TLE + Scorer	6.5 / 1.0 / 415v	107 mm x 2.6 m	£4650.00	£5,580.00
Forsa 9.0 - P3	Professional	Inc Professional STC + TWE + TLE + Scorer	6.5 / 1.0 / 415v	107 mm x 3.2 m	£4,800.00	£5,760.00

STC = Sliding Table Carriage, TWE = Table Width Extension, TLE = Table Length Extension. P3 models inc extra support table & clamp.

# In brief...



## MOUNT STEWART CELEBRATES COMPLETION OF £8M RESTORATION

Mount Stewart, on the shores of Strangford Lough in Northern Ireland, recently re-opened after a three year, £8million restoration project, which saw this grand house returned to its former glory. Visitors can now enjoy the reinvigorated and re-decorated house with previously unopened rooms, including the butler's silver store and billiard room. Hundreds of new items will also be on display to include internationally significant items, which the conservation charity has on loan from the Estate of the Marquess of Londonderry.

Among the striking items on display is the Congress of Vienna Desk, which belonged to Viscount Castlereagh when he was British Foreign Secretary at the close of the Napoleonic Wars and is said to have been used at the signing of the Treaties of Paris and Vienna in 1814 and 1815.

To find out more about visiting this stunning property, see [www.nationaltrust.org.uk/mount-stewart](http://www.nationaltrust.org.uk/mount-stewart).

## TIMBER EXPO LINE-UP KEEPS ON GROWING

Preparations for the first Timber Expo to take place at UK Construction Week are well underway, as a string of industry leaders sign up to exhibit at the show, which takes place at the Birmingham NEC from 6–8 October.

One name that has been recently added to the line up is Metsä Wood, the UK's leading supplier of timber materials for the construction industry. With a deep heritage in UK construction, supplying innovative timber solutions that draw their influence from the company's global presence for many years, Metsä Wood is an industry heavyweight. The company delivers premium quality timber products and systems that are sustainable,



traceable and fully certified. Supported by a comprehensive seminar schedule coordinated by leading industry association TRADA, the show has also gained the backing of several prestigious event partners including the Structural Timber Association (STA), the British Woodworking Federation (BWF) and BM TRADA.

Also, the timber industry's leading awards, the annual Wood Awards come to the fore here as well. This year the designers and judges will present the shortlist for 2015 with a discussion on how to win a coveted award. Wood in Architecture has its place here too. Complementing the Wood Awards, Wood Architecture will include a panel discussion considering the most interesting developments in timber across the world. Bringing together nine shows under one roof, UK Construction Week will be the biggest construction trade event the UK has seen in years. See [www.ukconstructionweek.com](http://www.ukconstructionweek.com).

## £12,000 PRIZE BUNDLE FOR APPRENTICE OF THE YEAR

Following a nationwide search for the best future trade professional in the UK, 21-year-old Nadia Connabeer – from Totnes in South Devon – has just been named as 'Screwfix Apprentice of the Year'. On top of Nadia's £10,000 prize bundle of tools, equipment and courses, her College at Bridgwater is awarded an additional £2,000 of funding.

Nadia has just completed a Level 3 Furniture Design & Manufacture course and currently works as a bench joiner at Hayman Joinery of Ivybridge. The judges were not only wowed by her



obvious skills and enthusiasm, but also by her creative abilities and her strong ambition to eventually teach her trade to others.

And there's more excitement on the horizon – Nadia has been nominated for the CITB's Pride of Construction award, and is shortly off to Holland on an apprentice exchange scheme – yet she still gets a huge kick out of drawing up an idea and turning it into reality with chisel and plane. One of her favourite quotes is: "Choose a job you love – you'll never work a day in your life," and this young woman seems set for a fulfilling future. We wish Nadia all the best in her future endeavours.





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BY TOM SMITH

# Flight of fancy

Inspired by the natural world, Tom Smith creates realistic looking images of various birds, animals and flowers. Here he takes us through the stages for creating one of his magnificent owls



Intarsia is a technique that uses pieces of wood of different size, shape and species, to create an image that gives an illusion of depth. The different pieces of wood are carefully selected for their colour, grain pattern and texture so that there is no need for paint or stain. All of the colours you see are the natural colours of the woods. After the woods have been selected, they are cut, shaped and polished and glued back together like a jigsaw. Here I will take you through the steps for creating a barn owl using this technique.

The first step in creating one of my sculptures is to do a line drawing of the bird I want to make. It starts off as quite a basic outline, then I add the individual feather outlines and draw



1 Here you can see my design and piece templates – notice the different coloured dots I use



2 The different parts of the owl start to take shape as I make my way through the cutting process



3 When all the pieces have been cut using the scrollsaw, they can be resassembled to create the shape of the owl, as shown here



4 Carving the body of the owl is completed using a variety of tools and an Arbortech Mini Carver power tool

in the areas of different colour and depth. This eventually gives me a template for each piece of wood, which I later cut on the scrollsaw. Every outlined area is then marked with the required grain direction. Each area is numbered and given a coloured dot, **photo 1**, which corresponds to the type of wood I want to use for that particular piece. The end result is a map, which I can use to keep track of where each piece of wood belongs.

## Individual components

The next part of the process is to separate out the different pieces of the drawing by cutting around the outline of every piece, **photo 2**. When I first started, I did this all by hand with multiple copies of the drawing

and a Stanley knife, but now I do it all on the computer with a graphics tablet, which saves time and allows me to make small changes throughout the design stage. All the outlines are then applied to the woods I want to use using spray mount, making sure that the grain direction and species of wood matches the required grain direction and colour on the design. Normally I use timber that is 25mm thick, which gives me some thickness to carve into later on while allowing me to cut it accurately. Generally, the thicker the wood is, the harder it is to cut accurately on the scrollsaw.

## Delicate cuts

When all of the piece templates have been stuck to the correct bits of wood, I can then

start cutting, **photo 3**. Using a scrollsaw with a blade so fine that the saw kerf is less than one millimetre lets me cut literally any shape I want. I can even stop halfway through a cut, spin the wood 180° around the blade and pass it back through the kerf I have just made. The only drawback of using a blade so fine is that with certain types of wood (wenge and oak in particular), the different densities in the growth regions and the grain structure can dictate how the blade passes through the wood. In an ideal world, every cut would be made at 90° to the surface of the wood, but with 'difficult' woods, such as wenge and oak, cuts are often far from square despite my best efforts. Sometimes this can prevent pieces from fitting together properly so I

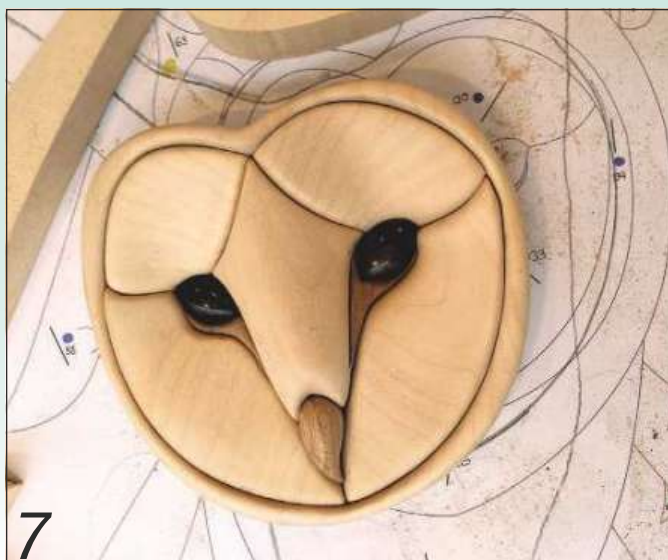




When the carving is complete, the owl starts to look more realistic, as you can see



For the sanding stage, each part of the owl has to be completed individually, which means separating them all out



I start by gluing the face of the owl, which looks almost lifelike



Once all the plates are complete, the design should look something like this – they're then ready for reattaching

have to run the blade around the outside of the piece to square off the edge, or even cut a new piece all together.

### The illusion of depth

When all of the pieces have been cut and I'm happy with how they all fit, I work out which areas of the design need to be raised to give an illusion of depth. This is done by using shims made out of different thicknesses of birch ply. These shims are then stacked on top of each other and make up the backer for the completed sculpture. After I have made the raising shims, I point glue the pieces of wood that make up the bird (using CA adhesive) to carving shims. This keeps the pieces of the separate levels together while I carve them.

I don't do any kind of designing for the carving. A mixture of instinct and trial and error lets me carve the different areas until they look right and give the illusion of depth. I use a variety of tools for the carving stages. If I need to remove a lot of material, then I use an Arbortech blade, which is an attachment for an angle grinder, **photo 4**, or a linisher. For finer details, I use a Dremel with various attachments (mainly an 80 grit TCT burr) or carving chisels and occasionally needle files. By using a sharp chisel and a bit of brute force, the pieces are then removed from the carving shims and the edges of the pieces are rounded off using a Dremel with a small 120 grit drum sander attachment, **photo 5**.

### Sanding awkward areas

At this point the fun really begins as it's time for every craftsman's worst nightmare – sanding. I sand each piece (apart from the eyes, which I sand to a 12,000 grit finish) by hand to a 240 grit finish to remove all of the scratches from the carving stage, **photo 6**. Because the pieces of wood are often quite small and awkwardly shaped, the best tool for sanding them is usually the edge of my thumb with abrasive wrapped around it, which leaves me with an almost permanently blistered thumb! I'm yet to find a better alternative but if anyone has any suggestions, I'd love to hear them. The final stage of sanding is done with a flap wheel mounted in a pillar drill; this gives the surface of the pieces a nice sheen before the polish is applied.



The next stage is to glue the plates together to give the overall finished design

## Jigsaw-like gluing

Now that everything is nice and smooth and free from scratches, the pieces that make up each level of the design are glued together like a jigsaw. This creates a kind of 'plate' for each level of the design, which can then be glued to the backer as one piece. Before gluing everything on to the backer, each 'plate' is coated with white polish. I only give the wood a couple of coats of the white polish; this is enough to seal the wood without making it so shiny that it hides the natural characteristics of the different woods. When the polish is dry, then the 'plates' are glued onto the backer, **photo 8**. After leaving the glue to dry and fully harden off overnight, I attach hangers to the backer so that the sculpture can be hung on a wall, **photo 9**. [www](http://www.tag-smith.co.uk)



A similar barn owl to the one featured, but this time shown from a different angle



African fish eagle

## OTHER INTARSIA WONDERS

Inspired by the natural world, Tom creates realistic wooden images of all manner of birds, animals and flowers using the intarsia technique, which he has taught himself from the age of 14. Here are a few other examples of the wonderful work he creates and to see more for yourself, visit [www.tag-smith.co.uk](http://www.tag-smith.co.uk)



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You will ideally have done course 1 (tools and things) or have a good working knowledge of how to use hand tools and have used hand held power tools.

The projects for you to pick from will be more complicated and will involve the use of the more sophisticated hand tools and hand held power tools and will include using some of the static power tools in the workshop. We will also be looking at buying timber, making cutting lists and drawing plans.

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# In brief...



## KERB APPEAL

Your eyes are not deceiving you, this is in fact a stunning 1:1 scale wooden replica of a 1955 Mercedes Gullwing classic car, which weighs in at two tonnes and is one of only two believed to exist in the world. Furniture Clinic was called on to restore this extremely rare replica, which was painstakingly fashioned from teak.

The wooden car, which comes with front wheels that can steer, was acquired at the start of the year by car enthusiast Jeremy Harvey. It's a beautiful thing and the owner has been told that the cost of the wood alone runs into the tens of thousands and he's had an estimate for the car of around £30,000. The Gullwing is currently in a warehouse although many carpenters have admired it and have told Jeremy what an amazing piece of work it is, and we agree!



## AXMINSTER COMES TO WALES

Axminster Tools & Machinery will open its eighth store this November in the Cardiff area. Situated at Valegate Retail Park on Copthorne Way (CF5 6EH) to the west of Cardiff city centre, the new store will boast 12,000sq.ft. of retail space. The Cardiff store will be open seven days a week, including bank holidays.

The new store will also display an impressive range of industrial machinery, including models from Axminster's own Industrial Series.

One aspect that will differ from all the other Axminster stores is that some signage will be in both English and Welsh. For more information, see [www.axminster.co.uk](http://www.axminster.co.uk).

## TEN TURNERS TURNING – 2016

Following the success of Axminster's prestigious Ten Turners Turning event at Nuneaton in March last year, the company plan to hold a second event in March 2016.

During this two-day event, a range of professional turners will demonstrate their skills and styles of woodturning, explaining any useful tips, techniques and easier ways of achieving the desired result and produce their own trademark turned pieces. Both Friday and Saturday afternoons will see the pros competing against each other and against the clock in the 'Ready Steady Turn competition'.

The line-up for this event includes a host of well-known names in the industry and there will also be a wide range of Jet and Axminster lathes on display.

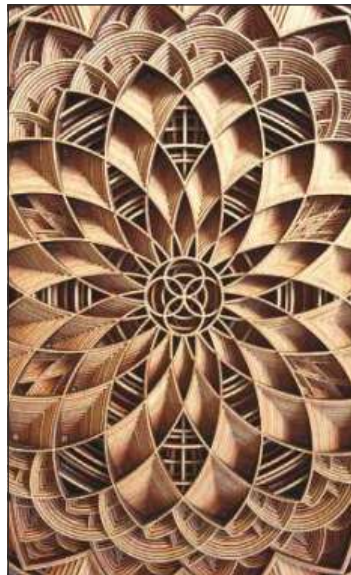
The dates for your diaries are Friday 11 and Saturday 12 March 2016 from 10am-4pm at Axminster Tools & Machinery, Bermuda Trade Park, Nuneaton CV10 7RA. Although this is a free event, you are advised to turn up early to avoid disappointment.

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1  
From the log to a piece of art



BY ALAN HOLTHAM



# 5: Choosing timber

**Having finally chosen and installed your lathe, tools and accessories, the time has come to select some timber. The business of choosing suitable wood is not so clear-cut as it is with tools. There are so many unquantifiable variables and you will often become disappointed and frustrated as all your best efforts are thwarted, not only by your unfamiliar tools or your faltering technique, but by the very material you are trying to fashion**

**F**ollowing some basic rules you can minimise the problems and in reality you can make the timber side of woodturning as simple or as complicated as you want. But beware, the whole process of gathering and preparing your own timber can become almost as obsessive as the process of turning it on the lathe. There is a real pleasure in taking a scrappy looking piece of firewood and turning it into a work of art, and from now on every piece of timber has to be scrutinised for turning potential, **photo 1**.



2

Ready to turn straight off the shelf of the specialist retailer



3

Recommending beginners start by buying cheap softwood is wrong



4

The 'hiss' of a sharp tool peeling away the material is wonderful



5

Preparing your own timber means you can cut the size you need, the way you like it



6

A tree surgeon's waste material is a good source of wet timber

The easiest way to acquire your wood is to simply go to a specialist retailer and buy ready prepared blanks off the shelf, **photo 2**. These are usually perfect as regards quality, and should be dried to a state that allows them to be used straightaway. They may appear expensive at first glance, and you might be reluctant to shell out a lot of money in the early stages of your turning career. But bear in mind that you are paying for all the waste material that has been cut away to prepare such a perfect piece, as well as all the storage and drying time, all very significant factors, as you will find if you start preparing your own.

### Practice timber and beyond

Beginners are often recommended to start by buying cheap softwood to practice on, **photo 3**, but this advice must be tempered with a note of caution. Softwood is notoriously difficult to turn well, even with years of experience and it is easy to become disheartened if this is all you use. Certainly don't spend a fortune on highly exotic blanks until you have become reasonably proficient, but do buy some cheaper prepared blanks of sycamore or beech. Although relatively plain as regards figure, these turn really well and you will soon be experiencing that wonderful 'hiss' as a sharp tool peels away the shape, **photo 4**. This will inspire you to continue; the torn and dusty grain of softwood will not.

If you are an occasional turner you can quite happily spend your turning career using ready prepared blanks. However, once the bug has bitten and your demand for timber becomes more voracious, you will probably want to start sourcing and preparing your own stock.

This may not be a much cheaper route, though. If you price in all the time and costs involved in finding the raw material, handling it, cutting it up, drying it, and then throwing half away when it warps and cracks, the shop bought blanks are suddenly not that overpriced after all. However, preparing your own timber gives you much better control, as you can cut the sizes you need in the way you like, **photo 5**. There is no doubt that it is eventually a less expensive way in monetary terms, but it takes a while to get there, and because converting and drying timber is such an inexact science, the only true guide is experience.

### Wet timber

Tree surgeons are a good source of wet timber as they often deal with more unusual varieties and are glad to get rid of what they regard as waste material, **photo 6**. Such



Garden trees are a rich source of decorative material



small garden trees and prunings are a rich source of decorative material, and thin branches of species such as yew and laburnum can be worked in the round, but they have to be dried thoroughly before they can be used.

In order to convert the larger trunks into more manageable pieces, you will need to invest in a small chainsaw. I use an electric one around the workshop and a bigger one outside for larger branches, which makes short work of slicing up the wet trunks, **photo 7**. Alternatively, even a small bandsaw will cope with a lot of the conversion work, **photo 8**, just make sure that log sections are securely held on the table and never try to cross cut logs or they will roll dangerously.

Fresh cut wood like this contains a huge amount of water, and although very easy to work in this state, it will subsequently crack and warp. The water has to be removed before the wood is ready for using; this is the difficult and lengthy process of seasoning.

You can store small log sections to dry as they are, a process that will take several years to complete, **photo 9**. They will crack and split on the end, often to quite a depth, particularly on fine-grained ornamental species like laburnum, **photo 10**. You can minimise this splitting by coating the ends with some sort of sealer to slow down the drying process. Hot paraffin wax is the



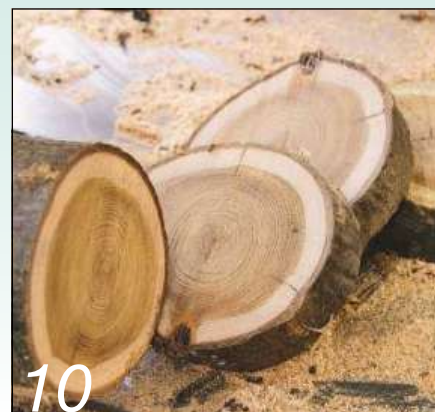
A chainsaw is used to convert larger trunks into more manageable chunks...



... alternatively, a small bandsaw will cope with a lot of conversion work



Small logs left to dry as they are – this will take several years to complete



Fine grain ornamental species like laburnum are prone to cracking on the end to quite a depth

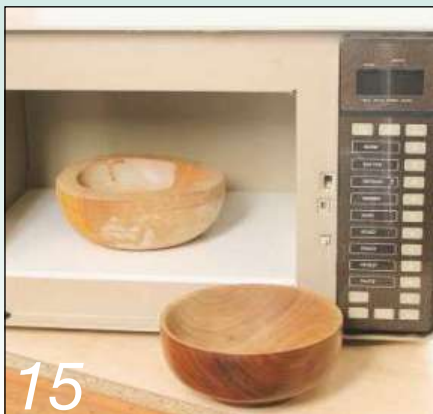




**11**  
Coating the end-grain with cold liquid wax to slow down the drying process



**13**  
... but you still need to seal the ends and even then expect a few failures



**15**  
Microwaving small items is possible but only use the defrost setting in short bursts

traditional method, but you can also buy liquid wax to brush on cold, which is much easier to use, **photo 11**.

Another way of seasoning your own timber is to rough turn it while wet. In this process you turn away a lot of the waste timber to an approximate shape of the final item, **photo 12**. This way you minimise the amount left to dry, which significantly speeds up the seasoning process. Even with this method the ends need to be



**12**  
Rough turning the blank while it is still wet will speed up the drying time...



**14**  
A moisture meter will let you know what is going on only at the point of testing



**16**  
Large cracks and splits can often be severe enough to almost divide the board in two

sealed thoroughly, and you will still get quite a few failures, **photo 13**.

The amount of water contained in even a small piece of wet timber is quite amazing, in reality it is just like a sponge. A moisture meter will give you an immediate reading, **photo 14**, but bear in mind that this is only accurate at the point of penetration of the probe – it may be much wetter further in. A more accurate but less scientific answer is to keep weighing the blanks until their weight

remains constant. At this point they are not necessarily dry, but are in equilibrium with their surrounding environment. Remember the sponge analogy: wood will soak up water from the atmosphere if it is wet, as well as releasing it when conditions are dry.

## Drying

The ideal drying situation is a cool shaded area where there are no dramatic or sudden fluctuations of temperature. It is very difficult to beat nature by speeding up the drying process too quickly, you just have to be patient. Somewhere sheltered outside will do to get rid of the initial moisture, and then bring it inside to finally condition.

The only possible shortcut for the home seasoner is to try microwaving turned items, **photo 15**. You can do this in a normal kitchen microwave but use it only on the defrost setting. There is no recognised technique for this yet, you will have to determine your own method, but my limited experience indicates that many short blasts of a minute or so over a period of several hours seems to do the trick. There will be more failures than with other methods of drying, but it is a real shortcut if you are prepared to master it.

The process of drying timber often builds up huge stresses within the cell structure and these may show up in a board as major cracks and splits, often severe enough to almost divide it into two, **photo 16**. While annoying, you can work around these defects. The more frustrating ones are those that only show up after the wood has been worked and finished. Bowls may warp or crack and the force is such that it can even crack inserts of marble or tile, **photo 17**. Never underestimate the strength of these drying stresses and remember that they are always the result of inadequate or faulty drying methods.

## Dimensional stability

One method of ensuring complete dimensional stability was developed initially by gun stock makers, but has since been much used by woodturners. The process relies on replacing the water within the wood with PEG (polyethylene glycol), a substance which is completely impervious to changes in atmospheric conditions and therefore renders the wood inert. Although quite feasible for the small-scale user, it is a rather messy process and the raw material is expensive. You need to cut and turn your blanks out of very fresh timber, partly dry material is no use. The rough-turned blanks are then soaked in a vat of the warm PEG solution, often for several weeks. After a



thorough soaking they can be force dried and then finish turned in the conventional way.

On a commercial scale, timber has to be treated in much the same way, though the logs are somewhat larger, **photo 18**. The logs are broken down on a bandmill, which works on the same principle as your home bandsaw, but with a blade of up to 305mm wide, **photo 19**. The resulting boards are stacked outside to start the drying process, **photo 20**, and may be left as whole trees with waney edges, or resawn with square edges, depending on the final application.

Really thick material will take several years to air-dry outside and this time span is always reflected in the increased premium you have to pay when buying thicker section blanks.

### Kiln-dried timber

Obviously there is not time to air-dry the majority of basic timbers, the process has to be speeded up by kilning. Such kiln-dried timber is ready for immediate use and sold with a specified moisture content so you are reasonably sure that it will be stable. The drying kilns are like huge ovens, **photo 21**, but both the temperature and humidity are closely controlled, and the contents can be dried in days or weeks rather than months or years, the exact timescale depending on such factors as species, thickness and initial moisture content.

If you use a lot of timber you can actually build your own kiln for bulk drying. Although on a smaller scale than commercial kilns, these home units can turn out some very acceptable results. They work on the dehumidifying principle, with a small drying unit being placed in an enclosed chamber with the stack of timber. They are well worth the relatively modest investment if you are a serious turner and have both the space and access to plenty of fresh timber.

### Exotics

Many of the home-grown timbers are relatively bland and colourless, it is only when you get into the exotics that the highly decorative and colourful species appear, **photo 22**. Notoriously expensive, these imported exotics are often only available in small sizes, primarily due to the quality of the logs. Even 'good' logs will be full of rot and shakes making conversion into dimensions extremely wasteful. Many of the species are effectively scrub trees and large sizes are rare but some exotics do grow into big straight trees. Species like padauk, ovankol and purpleheart are available in large dimensions, but such logs often have huge bands of contrasting lighter sapwood,



Bowls can warp with enough force to crack a marble insert



Commercial scale is dried in much the same way as the home woodworker – it's just bigger



Bandsawing a log is much the same as it would be done at home but the blade is a bit wider



Piles of boards are stacked outside to start the drying process



Drying kilns are like huge ovens with both humidity and temperature control





22

Exotic timbers are highly decorative and notoriously expensive



23

Branches joining the main tree provide crotch figure



24

Spalted timber can yield some decorative material



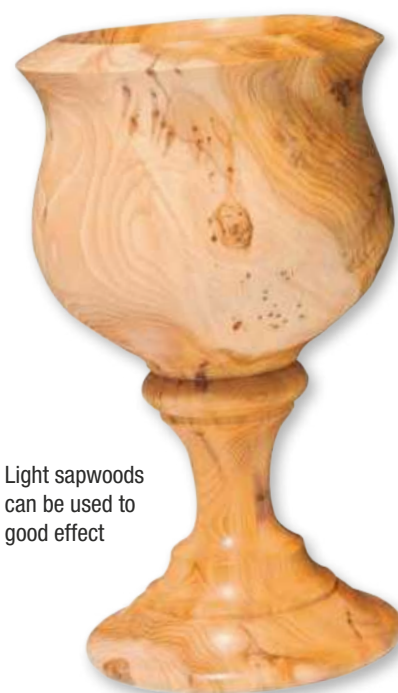
25

Mineral deposits or metal in wood can add some dramatic effects



26

You can use any piece of timber to great effect by exploiting its natural shape



Light sapwoods can be used to good effect

which may or may not be considered a decorative feature. In home-grown timbers like yew, you can use the light sapwood to good effect, but it is amazing how this varies in both shape and quantity from tree to tree.

### And...

Look out for other features that will provide unusual timber suitable for turning. Branches joining the main trunk of a tree provide crotch figure where the normal growth structure becomes more convoluted, **photo 23**. Turning timber from this area provides wonderfully rich and varied patterns though it is sometimes a little more difficult to work. Timber that has just started to go rotten is called 'spalted' and this can yield some highly decorative material, **photo 24**. Watch out for mineral deposits or metal in wood as this can also add some dramatic effects, particularly with regard to colour, **photo 25**.

There is so much to learn about wood that you will never get to know it all. The material itself is diverse and variable, but as a woodturner you can learn to use virtually any piece of timber using form and shape to exploit and enhance the natural characteristics, **photo 26**. The fun is not only in the turning but also in the hunt for that special piece that you can later bring to life on the lathe. [www](http://www.getwoodworking.com)

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BY COLIN SIMPSON

# Transverse bowl

**Carrying on with the transverse theme, this month Colin Simpson makes a bowl in the same style and also shows you how to make a handy 'cradle chuck' to facilitate turning**

**F**ollowing on from the transverse vase I made last month, I thought I would make a transverse bowl this time – or in fact two. As always the project is scalable, but I started with two 125 × 45mm squares of purpleheart. You will also need a sacrificial blank of the same size but it need only be between 18-35mm thick.

## Glue-up

Find and mark a centreline around all four sides of the sacrificial block, **photo 1**, and then mark the centre of this line, again on all four sides. Glue the two blanks together, sandwiching the sacrificial block between them, **photo 2**. I used polyurethane glue as

it has gap filling qualities. However, it is also likely to push the pieces apart as the glue expands, so it is important to clamp the glue-up together, or at least weight it down. This type of glue cures with exposure to moisture, so I spread the glue on one piece and wetted the adjoining piece with water before bringing them together. Wear gloves as this glue is very difficult to remove from fingers!

Once the glue has cured, remove any excess glue with a sharp chisel and then cut the blank into an octagon on the bandsaw, **photo 3**. This will make the initial turning easier. Keep the triangular offcuts – you'll see why later...



1 Mark a centreline around the sides of the sacrificial block



2 Glue the two bowl blanks to the sacrificial block



3 Removing the corners of the blank makes the initial turning easier



4 A bowl gouge gives a cleaner cut than a spindle roughing gouge in this instance



5 Stop when the curve reaches the waste wood



6 Light finishing cuts remove any torn grain and leave you with fine shavings

## Shaping cuts

Next, mount the blank between one of the pairs of centres marked on the sacrificial wood and start to knock the corners off. Usually, I would tell you to use a spindle roughing gouge to do this, but you will get less splitting out if you use a fingernail-profiled bowl gouge. Keep the tool over on its side and take light cuts, using the tip of the cutting edge, **photo 4**. Stop the lathe regularly to check progress. Do not turn the

blank to a cylinder, but stop when the cut reaches the sacrificial block, **photo 5**. Here I have just a few more finishing cuts to do. I use the same gouge, but lower the handle and make the cut on the wing of the tool, **photo 6**. Aim to keep the cutting edge at around 45° to the wood; this way you are shearing the wood off and should get fine, spiral shavings. Use outside callipers to ensure that you have not tapered the turning, **photo 7**. If you have, correct it, otherwise the

top of the bowl will never be square. Once you are happy with the surface finish from the tool, power sand the cylinder, **photo 8**. Now mount the blank transversely on the second pair of centres, **photo 9**, and repeat steps 4, 5, 6, 8 and 9. You should now have something that resembles **photo 10**.

## Secure turning

Cut the blank in half through the waste wood using a bandsaw. However, the blank





7

Make sure the blank is not tapered



8

Power sand to a finish



9

Mount the blank transversely on the second pair of centres



10

After repeating steps 4 to 9, your blank should look something like this



11

Keep your fingers away from the blade by mounting the work on a piece of scrap



12

Turn a chucking recess on the plywood disc

is not going to be very stable on the bandsaw table and if you just run it through the blade, your fingers will be very close to the danger area. I didn't like the idea of this so I mounted the blank on a scrap piece of 6x1 and used masking tape to hold it temporarily. I used hot melt glue to stick it more securely and also glued two of the triangular offcuts to the side of the blank and the base for greater stability. Now I could run it through the bandsaw and keep

my fingers well away from the blade, **photo 11**. I urge you to do similar.

### Making a cradle chuck

You will need an 18mm disc of ply or similar that is slightly larger than your bowl blanks and a couple of offcuts of 3x2 or similar that is the same length as the diameter of the ply disc. Having just fitted a kitchen, I had an offcut of work surface which I used. Start by screwing a faceplate to the disc

and mount this on the lathe, true up the edges and turn a recess in the centre to fit your chuck, **photo 12**. If you are only going to use this cradle once, you don't need to turn this recess – you can simply keep the disc on the faceplate. However, making the recess means that it can be reused time and again with reasonable accuracy. Reverse the disc onto this recess and mark the centre of the disc. Use the lathe or chuck's indexing system to mark two





13

Mark lines parallel to the diameters that are half the width of the 3x2s



14

Mark out the 3x2s as shown



15

Cut away the arcs on the bandsaw...



16

...and sand smooth using a drum sander



17

Glue the 3x2s in place with hot melt glue...



18

... and then screw them more securely through the back of the ply

diameters on the disc at 90° to each other. Measure the width of the '3x2', halve it and use this measurement to draw two parallel lines next to the two diameter lines on the ply disc, **photo 13**.

Find and mark a centreline on the lengths of the of the 3x2 and then mark a line half the width of the 3x2 each side of the centreline on one of the pieces, **photo 14**. Now scribe an arc, the radius of which is half the diameter of the cylinder you cut in

step 8. When this arc is cut away, the bottom of the bowl should fit comfortably in it. Look at **photo 14** again. The centre of the arc is 20mm off the piece of wood that has the arc on it. This will allow the bowl to sit proud of the 3x2s. Cut the two arcs out on a bandsaw, **photo 15**, and then cut one piece into three along the two lines each side of the centreline you marked on one of the pieces. If necessary, sand the arcs smooth using a drum sander, **photo 16**.

Now tack the three parts of the cradle to the ply disc using hot melt glue. Use the marking out lines as a guide, **photo 17**, then turn the cradle chuck over and screw through the ply into the 3x2s, **photo 18**.

## Hollowing & decoration

Now mount the cradle chuck on the lathe and load one of the two bowls in it. Make sure the bowl is as square as possible in the cradle and bring the tailstock up to





19

Hot melt glue one of your bowl blanks into the cradle



20

Use a pull cut to flatten the top of the bowl



21

Hollow the bowl in the normal way



22

I used a skew chisel to cut a bead at the rim



23

Reverse the bowl and cut a small flat for it to sit on



support it. Use hot melt glue to secure the bowl onto the cradle, **photo 19**. Note I have covered the back of the bowl with masking tape. This gives the back of the bowl a little protection from the cradle and it's easier to remove masking tape from the bowl than it is to remove hot melt glue. When the glue has cooled, remove the tailstock and turn the front of the bowl as normal. Start by removing the waste wood and flatten the top of the bowl using a pull cut, **photo 20**.

Now hollow the bowl in the usual way, starting near the middle and working out towards the rim, **photo 21**. I turned a decorative bead at the rim, using a small skew chisel on its side, **photo 22**.

Sand and polish the bowl and break the glue joints – I found this easier to do by removing the screws that held the 3x2s in place – and remove any masking tape. Reverse the bowl onto a flat disc with a piece of router mat sandwiched between

the disc and the top of the bowl. Bring the tailstock up to the centre of the base of the bowl and apply enough pressure on the tailstock to hold the bowl against the disc. Use a small spindle gouge to turn a small flat on the bottom of the bowl so it can sit on a table without rocking, **photo 23**. The small nib where the tailstock is will need to be cleaned up by hand, off the lathe. Finally, polish the underside of the bowl by hand. I used sanding sealer under a wax finish. [www.getwoodworking.com](http://www.getwoodworking.com)

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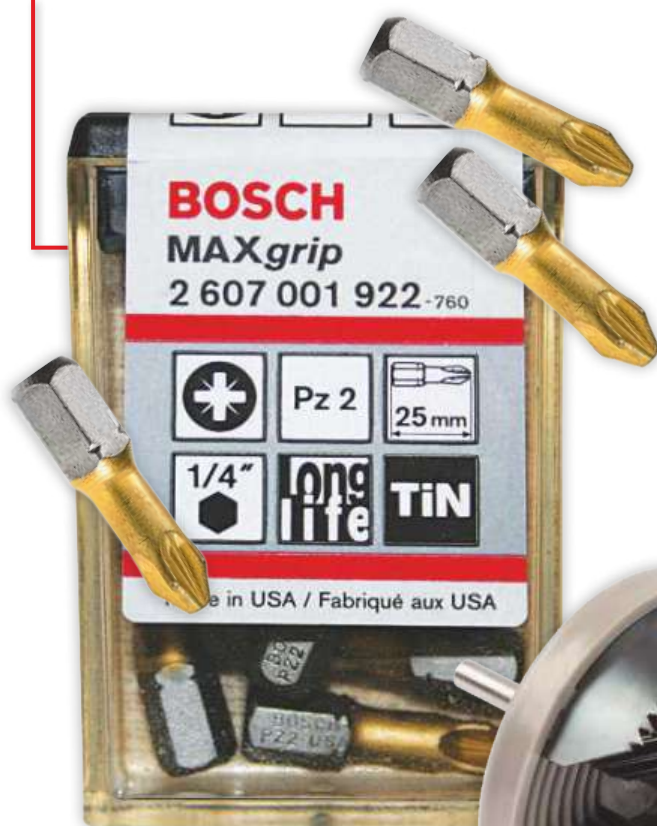


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BY IAN WILKIE



# A simple jewellery box

**Ian Wilkie has always encouraged his grandsons to come into his workshop and see what he was making, even when they were quite small. Here are the guidelines Ian's grandson Douglas, then 14, followed as he went about making a jewellery box for his mother**

## Preparing the wood

To begin the project, select the wood carefully, avoiding any cracks and large knots, **photo 1**. Thickness each piece to the dimensions given in the cutting list, and sand the wood well on both sides using an orbital sander, **photo 2**.

Before cutting the carcass pieces to size, plane each board along one long edge to produce a true edge, **photo 3**. Check it by eye using a straightedge, **photo 4**. Decide which surface is going to be on the outside and mark it with a temporary piece of masking tape. Cut the four pieces which form the box sides on the circular saw, **photo 5**, and true up the cut edges on a disc sander, **photo 6**. Check that all the cut ends are perfectly square, **photo 7**.

## Routing the rebates

Set up the router in the upright position and fit an 8mm twin parallel flute cutter. Rout a rebate 8mm wide × 4mm deep on the inside of the two box ends, **photo 8**, and one 4mm wide × 4mm deep along the bottom inside edge of each of the box sides and ends. Note that the router should be used with a guard, but this has been removed to make the photographs clearer.

## Starting the assembly

Sand all the surfaces smooth using fine abrasive in the orbital sander, **photo 9**, and double-check that you have machined each component correctly, **photo 10**. Check that the corner joints fit accurately, **photo 11**,

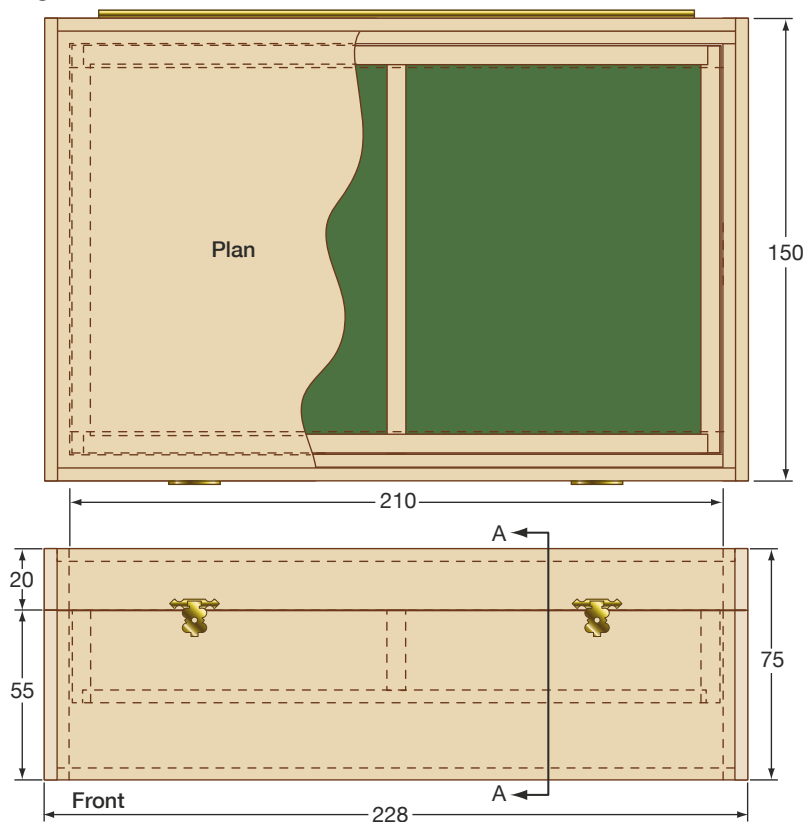
before gluing up the box sides. Carefully measure and mark out the plywood base and cut it to size on the outside of the line. Sand it to fit, glue it in position and cramp up the box assembly, **photo 12**.

Measure and cut out the lid slightly oversize and plane the edges, **photo 13**, until the piece fits perfectly, **photo 14**. Glue it in position and cramp it up. The box should now be completely enclosed. Sand all the surfaces thoroughly.

## Cutting the box in two

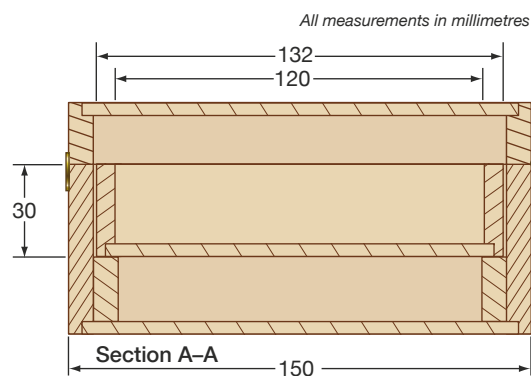
Use a marking gauge or a ruler and soft pencil to mark a line for the lid on all four sides, 20mm down from the top, **photo 15**. Decide which face is going to be the front of

Fig 1



1

I gave Douglas a choice of ash or oak for his box; he decided on the ash



## JEWELLERY BOX CUTTING LIST

All dimensions are in millimetres

Part	Qty	L	W	T
Box sides	2	220	75	8
Box ends	2	150	75	8
Box top/base	2	220	140	4 ply
Tray sides	2	202	30	6
Tray ends	2	132	30	6
Tray divider	1	126	26	6
Tray base	1	204	129	4 ply
Tray supports	2	220	25	8
Top/base veneer	2	230	155	0.7

You will also need a 200mm brass piano hinge plus screws, two small brass clasps and pins, and some self-adhesive baize for lining the box and tray and covering the box base

the box and put a temporary sticker above and below the line so that the box and lid can be realigned accurately once they've been cut in two. Hold the box in the vice and cut through it carefully side by side with a fine hard-point saw, **photo 16**. Clean up the cut edges with abrasives, check the alignment, **photo 17**, then put aside.

## Making the tray

Cut the four pieces for the tray sides and sand them square as before. Cut rebates 6mm wide × 3mm deep on the ends of the two short sides, then cut rebates 3mm wide × 4mm deep along the bottom edges on all four pieces.

Plane the plywood base to fit the bottom of the tray, then glue and cramp up the assembly. Cut a divider to size and glue it to the tray base and sides, **photo 18**. Wipe away any excess adhesive, which will prevent the varnish from taking properly. Try the tray in the box to make sure it fits.

## Applying the veneer

The advantage of using veneer is that you have the chance to try rare, exotic woods at very little cost. Douglas' box uses a dramatic piece of Sassafras blackheart veneer.

Select the veneer and cut a piece 5mm oversize all round for the top using a



2

Sand the thickened wood with an orbital sander before cutting it to length



3

Plane one edge true before sawing the thickened boards to width





4 Check it by eye using a straightedge; this can take quite a while to get right!



5 Cut the boards to width on the circular saw. Note the use of a push stick



6 True up all the cut ends using a disc sander



7 Use a try square to check that all the cut ends are a perfect right angle



8 Rout the rebates on the box ends with the router mounted overhead. Guard removed for clarity



9 Another sanding session will remove any whiskers left by the router



10 The four box side components with all the rebates prepared and checked



11 Assemble the box dry and check that all the corners fit squarely



12 Cut the base to size, then glue and cramp up the box assembly

## TIPS FOR YOUNG WOODWORKERS

■ When selecting a project for a young woodworker, be realistic. The aim is to build up confidence and to show how satisfying it is to make something well. Do not overcomplicate the issue and insist on difficult joints, which will probably go wrong. Do resist the temptation to take over. The only way youngsters will learn is through practice and constant encouragement.

■ The emphasis throughout this project is on accuracy and finish. Box making is a challenge; things can go badly wrong if they're rushed, and you can end up with a box with an ill fitting lid. I think Douglas was surprised at how long the project took, and on one occasion when he cut a piece for the lid and found it was too small, he learnt why it is important to measure and double-check everything.



13 Plane the plywood for the top using a low-angle block plane



14 Glue the plywood top into place in the cramped-up box assembly



15 Use a marking gauge to indicate where the box is to be cut in two



16 Use a fine-toothed saw to part the top from the bottom



**17** Temporary stick-on markers will aid relocation after the cutting



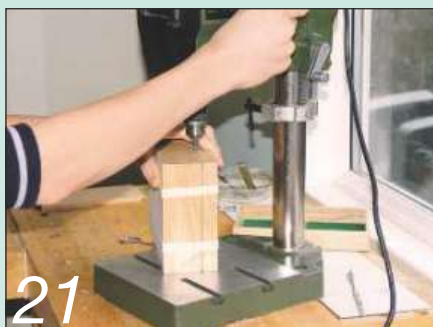
**18** Fit the divider and varnish the tray inside and out



**19** Glue in the veneer on the underside of the lid with a contact adhesive



**20** Use a template and a sharp scalpel to cut the baize to size



**21** Drilling the pilot holes for the piano hinge in the box and lid



**22** Screw the hinge in place, taking care to drive the screws in square



**23**

The completed box – a great achievement for a young woodworker

straightedge and a sharp knife. Apply contact adhesive to the box lid and the underside of the veneer, and bond the two surfaces together. The excess which overlaps the lid all round will be trimmed later. Press down firmly on the veneer to bond it well, then place a sheet of scrap ply over it with a heavy weight on top and leave it to cure.

Reverse the lid onto a cutting mat and trim the veneer with a sharp knife. Cut a second piece of veneer for the underside of the lid; this time it will have to fit exactly, **photo 19**. Glue it in and weight it down.

## Finishing the interior

Apply two coats of acrylic varnish to the inside of the box and the underside of the lid, avoiding the areas where the tray supports will be glued. Then varnish the tray. Cut the baize to size and fit it into the bottom of the box. It is helpful to use a template as a guide, **photo 20**.

Cut two strips of hardwood and glue them inside the box to act as supports for the tray and check that it will still fit snugly under the lid. Line the tray with baize.

## Finishing the exterior

Apply at least two coats of satin acrylic varnish and leave to dry. Hold the box and lid together with masking tape, making sure they're correctly aligned. Use small pieces of double-sided tape to hold the hinge in position against the back of the box and mark the positions for the screws. Mark the position of one end of the hinge so you know which way it is to be screwed on, and remove it from the box.

Set the depth stop on the bench drill and fit the correct sized drill bit for the pilot holes. Try the size and depth out first on a piece of similar scrap wood; when you're satisfied, drill all the pilot holes, **photo 21**.

Insert the hinge screws carefully, making sure they're at right angles and that you don't damage the heads as you drive them in, **photo 22**. Next, position the clasps, mark the positions for the pilot holes and drill as before. The clasps are usually attached with small pins, which need to be inserted with a little Araldite. Finally, cover the underside of the box with self-adhesive baize, trim away the excess, then it's presentation time! **WWW**

## FURTHER INFORMATION

For veneer, brass piano hinges and clasps

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Edward 'Woody' Harringman brought a Gold medal back to the UK, which singles him out as the best young maker in the world

# Skills around the world

**A few issues ago we reported from the national finals of the WorldSkills selection competition but now, after the winners have been announced, we bring you all the details and consider what goes into making an award-winning tradesperson**

**R**egular readers may recall *The Woodworker* visiting the national finals of the WorldSkills selection competition that was recently held at the Swadlincote construction campus of Burton and South Derbyshire College. These were organised as the final test to determine which young tradespeople would go forward to São Paulo to represent the UK in their various working disciplines.

We were watching the joinery and the cabinetmaking competitions (carpentry was being held elsewhere) and correctly tipped the eventual winners, Dale Hodgins and Edward Harringman, who both booked a ticket to Brazil that day. But if the heats were hard work, I suspect it was only a fraction of what was experienced last month at the actual world competition itself; no manner

of effort could recreate the sort of atmosphere that most of us can only imagine would exist at a world Olympic-type final.

As with pro athletes who compete every four years for the chance to stand on the



Golden boys: Edward 'Woody' Harringman, left, with George Callow who won Gold two years ago





Tutor Christian Notley with Edward, who says he is extremely proud of the young maker's achievement

## WORLD SKILLS BACKGROUND

Taking place every two years since its inception in 1950, WorldSkills is the world's largest skills competition, which is held around the globe to celebrate skills and share best practice between industries and countries. Staged from 11–16 August 2015, WorldSkills São Paulo 2015 gave the world's most talented young people the chance to battle it out to be named the best of the best in skills ranging from web design and aircraft maintenance to hairdressing and visual merchandising.

After four days of intense competition, Team UK, whose members are all aged 18-25, won three Gold, three Silver and two Bronze medals. The team was also awarded 25 Medallions for Excellence, which are given to competitors who demonstrate the attainment of world-class standards in their chosen skill.

winner's podium, years of training and preparation goes into each attempt to win Gold at WorldSkills and be declared the ultimate tradesperson. So, just what does it take to be crowned the Best in the World? Here's what we think:

- ✓ A high level of natural skill; check
- ✓ Real life experience in your chosen trade; check
- ✓ Years of training and preparation; check
- ✓ Full support of employer and family; check
- ✓ A commitment to doing the very best you can; check
- ✓ Careful planning and a cool head; check
- ✓ The energy and stamina to get through a very tough four days; check

### No mean feat

As we all know, the UK continues to produce top quality tradespeople across the board, and this is both a tribute to the training and further education available here. It's not just colleges who've played their part, though, thanks are also due to the companies which set and maintain the

## MEDALLIONS OF EXCELLENCE

Medallions of Excellence were also awarded to Owain Jones in the Carpentry category, Alex Elton in the CNC Turning category and Dale Hodgins in the Joinery category, among many others who helped to make up Team UK.

sort of high standards necessary to enable such highly skilled workers to flourish, and who support their trainees to achieve the very best they can.

When you consider just how many tradespeople from other countries participate in this competition, it's no mean feat to just get anywhere near the top 10, let alone win a medal. I think we must all agree that it's been a real pleasure to see our young tradespeople – and particularly those from the woodworking world – do so well across the board. So, we send hearty congratulations from everyone at *The Woodworker* – you've all been great. [www.getwoodworking.com](http://www.getwoodworking.com)

## EDWARD 'WOODY' HARRINGMAN

Edward's interest in cabinetmaking started while he was studying resistant materials for his GCSEs – working with wood struck an immediate chord with him. When he enrolled at Chichester College in 2009, he discovered he could compete against the best in the world.

After winning Gold at the end of an intense four days, this now means that the 21-year-old has repeated the achievements of another former student of Chichester College – George Callow – who won Gold in the same category two years ago at Leipzig, Germany. In fact, Edward is the fifth Chichester College student to represent the College on the WorldSkills stage, and the fourth to enter in the cabinetmaking category, behind George, Chris Wallace, who entered in 2011, and Luke Griffiths, who received a Medal of Excellence in 2009.

Edward faced stiff competition to secure the top position and despite having to use local timber he wasn't familiar with to build the required side table with doors and two drawers, he succeeded.

Edward was guided by Christian Notley, who runs the College's Furniture Making Department and who also serves as the WorldSkills UK training manager.



Edward working on his cabinet in the nail-biting final challenge

Edward has competed in countless competitions over the years to reach this point, gaining his place in the UK team by winning the WorldSkills selection contest earlier this year.

Christian was delighted with Edward's achievement, saying: "Woody kept his cool throughout, despite being under huge pressure. Each day he did brilliantly but was dropping behind the plan, so on the final day he had a lot to do in just four hours. We've been on a long journey together over six years and he's done himself proud. I'm extremely proud of him and his achievement."



BY MARK CASS



Here's a classic situation requiring short runs of matching mouldings

# Clever handwork

**Sometimes you need to match up a missing moulding, and there's no chance of buying a short length off the shelf. It would be something of an extravagance to have some new spindle cutters made specifically for such a small job. This is one of those times when a clever bit of handwork is required**

**O**ver the years I've run out a number of custom mouldings, and have always found it to be a very rewarding job. Unlike the majority of carving work, where a bit of latitude can be accommodated without any real problem, strict attention to form and dimension needs to be rigidly followed to avoid an obvious mismatch between new and existing mouldings.

## The right materials

Choice of timber is probably the first consideration. I often find that this decision is strongly influenced by what wood I have to hand, but you really want something with a regular straight grain and no knots or other defects.

Obviously, if the moulding is to match an existing timber, then the species must be the same (or at least very close), but if paint is to be involved then pretty much anything can be considered. Knotty softwood is probably the least suitable, even less so than MDF, which at least doesn't have much in the way of grain to worry about. Whatever you choose, run a plane across a test piece first to see how it performs.

## Template time

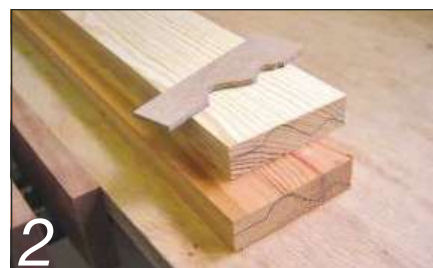
If you can't acquire a sample of the original moulding, then you need to make an

accurate copy. If there isn't a square end to hold a piece of card up against, then saw through the moulding in an unobtrusive spot and insert a piece of stiff paper or thin card into the kerf; you'll then be able to mark out the profile with ease. Take the time to convert this recording into something more solid, which will become the definitive template for the job. Thin MDF is entirely suitable for this task.

## Matching dimensions

The next step is to machine out your timber to the exact dimensions of the moulding. Be sure to give yourself a bit of extra length, as often the start and finish of the run will come out less than perfectly.

With the profile marked onto each end of your lengths (make sure they're both the



Make a template from the original and mark up the timber accurately



right way round), it's time to set about removing the bulk of the waste. I like to do this job on my table saw with the Suva guard fitted, but, like most carpentry jobs, there are plenty of other ways to achieve the same result.

### Basic shaping

With the moulding roughly blocked out, the job becomes less daunting and all of a sudden looks much more achievable. With a sharp gouge and a chisel or two, the work of removing most of the rest of the waste is a fairly straightforward job, particularly if the grain of the timber is kind, but watch out that you don't go beyond the depth required. Finally we reach the stage where a plane or two can be deployed.

### Moulding the future

Over the years I've picked up the occasional moulding plane; generally beech, these planes formed a staple part of a woodworker's toolkit up until a generation or two ago, with many skilled craftsmen making their own when required.

Moulding planes are still widely available for fairly sensible money, and it's definitely worth having a few just for this kind of job. By matching the tool profiles with those of the moulding, it's easy to get close to the required shape without too much effort.

I've found that the internal or concave areas are the trickiest; once you've got these sorted out then the outside curves can be formed with a rebate or bull-nose plane. Just make sure that each pass of the plane travels the entire length of the moulding, and keep the MDF template to hand at all times so you can constantly monitor the progress of the work. Your goal is to achieve a constant profile along the entire length of the run.

### Cleaning up

Finally, once the desired moulding has been formed, the whole job can be cleaned up with a shaped scraper and/or abrasive papers. Starting with a coarse abrasive such as 60 grit, any slight flats in a curve or similar problem areas can be blended in, and then it's just a case of working down through the grades until the required finish has been achieved.

### Summing up

With a bit of practice, running mouldings can be a fairly quick job. It's certainly much easier, quicker and cheaper than getting your local timber merchant or joinery shop to run it out for you, and definitely more satisfying on many levels. Give it a try! [www.getwoodworking.com](http://www.getwoodworking.com)



3 Initial table saw cuts mark the extent of the main curves



4 The bulk of the waste can then be removed on the saw bench



5 Rough out the shape using a sharp gouge and a chisel or two



6 I've built up a modest collection of moulding planes over the years



7 The replacement moulding soon begins to take its final shape



8 With the planing completed, it's time to clean up the details



9 A curved cabinet scraper is ideal for this part of the task



10 The new skirting is built up using MDF and the new top moulding



11 The finished job, needing just some filling and decorating



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*Having been recently relaunched and updated, the Triton SuperJaws XXL SJA300 is now larger, easier to set up, easier to operate and easier to transport. What's not to like?*

## Triton SuperJaws XXL SJA300

These SuperJaws have been around for some years now and they've proved to be an invaluable device. It is basically a vice on steroids, capable of supporting and gripping heavy objects and exerting considerable force. It is also easily portable. This latest version builds on its strengths with some new design features.

### Multi-functional

I have owned a Triton SuperJaws for some years and it has proved to be extraordinarily useful for so many jobs, not just in woodworking. Its wide capacity jaws mean that it can grip large

objects, such as doors, that no other vice can hold. Its powerful jaws can also be used as a press for inserting bearings, for instance. It can be used outside to hold large logs for chainsawing into firewood. It can be used to hold all kinds of other things too, such as bicycles and mowers for repair. As you can tell, my SuperJaws have seen a bit of action. So when the latest model arrived on my doorstep, I was keen to see what changes had been made, and if it was better.

### Design

The new model is superficially similar to the original, but there are a fair amount of changes. The original had three legs that were joined with folding rails to hold the assembly rigid. These have gone and the legs now fold separately and lock solidly in position. Though the front legs always had large baseplates, the rear one never did. This has now been remedied

giving improved stability on soft ground. The whole folding system is much improved as the rear leg is now folded last and locates in the underside of the unit making a convenient carrying handle. On the rear end of the unit there is also another folding carry handle.

### In use

Once the SuperJaws are standing up, more changes are apparent. The whole unit is larger with wider jaws and an increased capacity. The jaws are still reversible as before. The excellent foot-operated clamping system remains, but has been improved. In the past you

£135



The new small sliding switch, which saves bruised shins!



Full and clear instructions are given on how to clamp and release the SuperJaws





The SuperJaws also have a number of other uses, including repairing old machinery



This tool is also ideal for sawing wood, thanks to its unbelievable hold

placed your workpiece in the jaws, applied pressure with the foot-pedal to clamp it and then locked the vice by means of pulling a hinged lever on the front. All very easy. To release the vice all you did was push the lever back in. This, however, had the additional effect of releasing the foot pedal, which would spring forward and give you a nasty bruise on your shin if you weren't careful. The new model uses a slightly different system. Instead of a lever to lock the vice, there is now a small sliding switch. To release the pressure, first the switch is disengaged, then, before anything will happen, you have to press on the foot pedal until it clicks and then the vice releases. No more bruised shins!

### Summing up

Having thought that there really wasn't much that could improve the SuperJaws, I'm happy to be proved wrong. This model is definitely better than mine. It is easier to set up, larger, easier to operate and easier to transport. It is altogether a more sophisticated tool. **AS**

## SPECIFICATION

<b>CLAMPING CAPACITY:</b>	0-1000mm
<b>CLAMPING FORCE:</b>	1 tonne
<b>MAX LOAD:</b>	250kg
<b>WEIGHT:</b>	19kg

**ACCESSORIES:** Triangular section side extension rails and additional work supports are also available to provide additional support for large loads

## VERDICT

Still a brilliant tool and now more refined, more stable and with a larger capacity

**PROS**

- Unique
- Versatile
- Super tough
- Simple, quick and easy to use
- Useful new accessories also available

**CONS** ■ Absolutely none

**VALUE FOR MONEY**



**PERFORMANCE**



## FURTHER INFORMATION

- Triton
- 08445 760 266
- [www.tritontools.com](http://www.tritontools.com)

Need to repair an old chair? No problem with the SuperJaws, which can hold awkward items firmly in place



Holding wood is easy, efficient and devilishly effective. This piece certainly isn't going anywhere!



These handy extension rails allow you to hold larger items and provide additional support



The whole assembly folds down to a manageable size, so it is easily transportable

*Draper's MT300 Oscillating Multi-Tool Kit offers efficient, robust performance, great value for money, but a fiddly accessory fitting does unfortunately let it down somewhat*

## Draper MT300 Oscillating Multi-Tool Kit

A few years ago the multi-tool or multi-cutter was a rare machine with only one or two manufacturers making them. Now hardly a week goes by without another model being released onto the market. This is Draper's offering, which is supplied with a storage case and several useful attachments.

The concept of oscillating tools has been around for some time. It was in 1968 that Fein, the German tool company, first made an oscillating saw specifically designed to remove plaster casts safely without any risk to the patient. They then developed the idea and it became the Multimaster multi-tool, capable of a wide range of cutting, sanding, grinding and polishing jobs. For years the Multimaster was the only tool of this type, but now, however, many other manufacturers are producing their own versions.



### Design

The Draper is a pretty standard design. It has a long body with rubber inserts on the handgrip, a sliding power switch and a variable speed control wheel at the rear. The accessories are held in place with an Allen bolt and a key for this is stored in a holder mounted on the power cable.

### Accessories

Supplied with the tool are two blades, one scraper blade, a triangular sanding plate and a dust extraction tube and vacuum

adaptor. The accessories all conform to the OIS (Oscillating Interface System) so accessories from other manufacturers will fit it.

### Changing accessories

The blades and sanding pads are fitted to the oscillating shaft with an Allen bolt and a washer. The washer has four slots cut in it, which must locate over the mounting pegs on the shaft to provide a firm grip. The problem is that the pegs are a little short and it can be a fiddly process to line up the slots once a blade or sanding pad is fitted.



Accessories: a sanding pad, abrasive, dust extraction attachment, two blades and a scraper



A mounting shaft makes it easy to attach accessories, using an Allen bolt and washer



Fitting a sanding pad can be a bit of a fiddly process



Pad fitted showing slotted washer



Ready for sanding with extraction fitted



The Draper Multi-Tool with sanding pad fitted easily removes material





It also excels at cutting, thanks to an angle grinder attachment

### In use

The Draper is a satisfying tool to use. The dust extraction system is easy to fit and works well. Its sanding performance is excellent. Personally I prefer the oscillating motion to the orbital motion of a detail sander. Its cutting performance is also good. The variable speed is efficient and the machine is comfortable to hold and use.

### Conclusion

Overall, this is a very good machine. Fixing the accessories may be a little fiddly but given the price and the performance of the Draper, it's a minor complaint. **AS**

## SPECIFICATION

**Power:** 300W

**Speed:** 10,000-18,000 orbits per minute

**Weight:** 1.45kg

**Accessories:** Storage case, sanding pad, abrasive, dust extraction attachment, two blades and a scraper blade

## VERDICT

A competent tool at an attractive price, only marred by fiddly attachment fitting

**PROS** ■ Robust, efficient performance  
■ Good value

**CONS** ■ Annoying fitting system

**VALUE FOR MONEY** ■ ■ ■ ■ ■ ■ ■ ■ ■ ■  
**PERFORMANCE** ■ ■ ■ ■ ■ ■ ■ ■ ■ ■

## FURTHER INFORMATION

■ Draper Tools  
■ 02380 494 333  
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*Despite requiring additional kit in order to use it, the Proxxon GE 20 Engraving Device is ideal for engraving nameplates, jewellery and other objects, thanks to its well-made construction and comprehensive instruction booklet*

# Proxxon GE 20 Engraving Device

**£189.96**

## SPECIFICATION

**Weight:** 2.6kg

**Dimensions:** 300 x 305 x 90mm

**Accessories:** Supplied with two sets of letters from A to Z, hyphen, full stop and dash (a total of 52 pieces), three Allen keys: 1.5, 3.0 and 5.0mm as well as a 2.5mm HEX (ball head) screwdriver. A detailed instruction manual is also included for ease of use

## VERDICT

## PROS

- Well made
- Interesting to use

**CONS**

- Insufficient stencil letters included
- Stencil letters too dark to see clearly
- No engraving cutter included
- No clamping method for the work included

## VALUE FOR MONEY



## PERFORMANCE



## FURTHER INFORMATION

- Axminster Tools & Machinery
- 03332 406 406
- [www.axminster.co.uk](http://www.axminster.co.uk)



This latest product from Proxxon is an interesting device but it is not for the faint-hearted; it will need some perseverance to master and it's expensive. The machine is designed to engrave thin, flat nameplates in wood, metal or plastic. For the purpose of this test I have concentrated on wood, but the first thing to point out is that you will also require a power unit, such as the Proxxon Micromot 230/E mill/drill, which costs an additional £72.96.

## What's included

When you purchase the device you also get three Allen keys, a 2.5mm hex screwdriver, a letter guide rail with two 'T' bolts and two sets of letters and numbers.

The engraver consists of a dovetail base 280mm long x 70mm wide made in machined aluminium with two adjustable and lockable tables, which can slide from

the front to the back and be moved to the left or right. The front table is 260mm long  $\times$  70mm wide and the rear 200mm  $\times$  70mm. The top surface of both tables have three 'T' slots to take standard Proxxon 'T' bolts. Gib strips are incorporated to take up any slack and there are locking screws to secure the tables in position. At the back of the device you have a spring-loaded hinge plate, which takes the back pivot for the pantograph arm; this enables the whole arm to be lifted backwards to raise the cutter and the stylus clear of the work being machined. The four arms of the pantograph can be set to give ratios of 2:1, 3:1, 4:1 and 5:1.



The device is supplied with two sets of letters and numbers, as well as a host of handy tools



A steady hand and concentration are needed to get satisfactory results



A nameplate in MDF engraved on a painted surface



*Based on the classic Nobex quattro folding squares, the Octo square has been redesigned for marking eight angles instead of four. Offering great value for money, this is a strong and extremely accurate tool*

From  
**£22.96**

## Nobex Octo folding square

This is a quality tool made in Sweden in three different blade lengths and the longest version was sent for test. The square can be set at eight different angles and the stainless steel blade folds into the golden anodised aluminium stock and takes up little room in the toolbox. The shortest version slips in the apron pocket comfortably. The square can also be hung on a hook using the hole at the end of the blade.

### In use

The Octo can be clicked into eight positions by means of its patented ball-bearing device, which locks the square firmly and positively



Two earlier versions, which have only 90° and 45° settings. I have had these Nobex squares for at least 25 years and they look as good as new and are just as accurate as when I bought them!



The square can be used for drawing out angles



Checking the 'squareness' of a turning blank before it goes on the lathe

in the selected position. The angles are: 157.5, 135, 112, 90, 67.5, 45 and 22.5°. These positions are marked on the gold coloured handle and the blade itself is graduated in millimetres and centimetres.

The square can be used for drawing out angles and the longer blade is particularly useful when marking out plywood and MDF. I often use a Nobex square for checking the 'squareness' of a turning blank before it goes on the lathe and it also comes in handy for marking the angle of a sloping room, for example.

### Summing up

This is a strong, extremely accurate tool, which will not rust or wear and should last indefinitely. The manufacturers claim that the folding mechanism has been tested 50,000 times and the accuracy has never failed, so I think it does offer good value for money. **IW**

### SPECIFICATION

<b>WEIGHT:</b>	250g
<b>AVAILABLE IN</b>	200, 300 or 400mm versions
<b>STOPS AT</b>	157.5°, 135°, 112°, 90°, 67.5°, 45° and 22.5°

### VERDICT

- PROS**
- Good value for money
  - Accurate design and positive locking stops
  - Easily folds for storage
  - Makes marking eight angles very accurate

- CONS**
- None

<b>VALUE FOR MONEY</b>	■■■■■■■■■■
<b>PERFORMANCE</b>	■■■■■■■■■■

### FURTHER INFORMATION

- Axminster Tools & Machinery
- 03332 406 406
- [www.axminster.co.uk](http://www.axminster.co.uk)

The stencil letters and numbers are cast in 4mm-thick black plastic tablets each measuring 20mm high x 13mm wide. The selected letters or numbers slide into an aluminium guide rail, which holds a total of 14 characters. The loaded rail is secured to the front table by means of two 'T' bolts. The instruction book states that the item to be engraved can be secured to the rear table by means of the Proxxon clamp set (£21.96) or held in small machine vice (£15.96). I tried both of these methods; the clamps tended to get in the way when swinging the pantograph arm clear and with the Proxxon vice it was very difficult to ensure that the work was held in a firm, level, horizontal position so it was hard to guarantee a consistent depth of engraved letters.

You will also need a solid carbide engraving stylus at £14.46, or the finer Ritz scribing stylus. Regular users of Proxxon equipment may well already have a suitable drill and the clamps and vice but newcomers may be put off by the extra cost involved.

### In use

When I lifted the stylus out of the work I found that the pantograph arm swung to the back and the machine tipped, which I found disconcerting. To overcome this problem I mounted the device on to a piece of MDF with four rubber feet underneath and drilled holes for two pillars behind the machine, as shown in the photo.

Holding the work to be engraved on the back table can be tricky, so I cut a piece of 8mm Formica-faced plywood 200 x 70mm and drilled two holes for home-made 'T' bolts to secure the wood to the table. I used double-sided carpet tape to hold the piece to be engraved to my false table and this proved to work well; the grip was good and it was easy to remove the tape and renew it for the next job.

### Summing up

This engraving device is strong and well-made and the instruction booklet for setting up the machine and for changing the ratios is clear with good illustrations. It can produce very small letters and numbers up to 20mm high. This is quite limiting and, from a woodworking point of view, the engraver will probably only be of interest to model makers and for those who wish to create tags and labels for keys or suchlike. Although expensive, I have really enjoyed having the opportunity to try it out. **IW**

# In your own write...

Here are just a few of the latest letters we've received since the last issue. Drop us a line on paper or via screen and keyboard to add your voice to the woodworking crowd; you might be one of the lucky few who will manage to get their hands on a coveted *Woodworker* badge!

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The Editor's scrapers and sharpening kit

## CUSTOM-MADE SCRAPER

Dear Mark,

I was very interested in your reply to Graham regarding the use of glass as a cabinet scraper (see readers' letters in the September 2015 issue of *WW*). I'm now 90 and have spent many years in all aspects of the trade. I've been privileged to work with some of the best craftsmen in the country, all of whom used home-made metal scrapers. One of the big advantages of a custom-made metal scraper is that it can be ground to whatever shape you want. The key to it all is the sharpening of your scraper; the edge must be turned over with the back of a gouge or better still, a 'ticketer', what we used to call a rod of hard steel. With this, a scraper can be quickly sharpened. A piece of sharp glass will work, but will only remove dust whereas you can get fine shavings with a metal scraper; sometimes it's better than a plane.

By the way, if you have a copy of *WW* issue 673 from November 1949 to hand, you can read all about it on page 176.

**R A Guppy, Cwmbran, Gwent**

*Well, thanks for that one Richard, and I most certainly will check through the archives to find that particular article. My own favourite scraper sharpening device is a smoothly blunt knife steel, but I love the idea of a ticketer – that's exactly the sound it makes when you're stropping prior to filing the edge.*

*Mark*

## IN SEARCH OF A BUREAU

Hello Mark,

I have subscribed to *The Woodworker* and *Woodturner* for a number of years and am looking to manufacture a mahogany writing bureau – have there been any plans in your previous issues? Please advise the month and year as I have quite a collection.

**Thomas Adam, Dundee**

Hello Thomas,

*Thanks for your enquiry, and I'm pretty sure I've seen a bureau plan or two in some of my archive searches. I shall keep your request to hand and do a bit of sleuthing.*

**Mark**



Hello Mark,

Many thanks for your reply, I have had another search of my magazines and found a bureau in *Good woodworking*, issues 185 and 186, but I do not seem to have issue 184, which I assume is part 1 and the design of the main body of the bureau?

Hello again Thomas,

*Well I've finally managed to track down issue 184, but only as a few digital files. It's not the complete article, but hopefully these PDFs will be of some help, especially as the full drawings are amongst them. Good luck with it, and please let me know how you get on.*

**Mark**

## MACKINTOSH-INSPIRED DINING CHAIR

Dear Mark,

Here is my latest project. It's a big brother to the one I made earlier this year (inspired by Douglas Brewer's project in the July 2014 issue of *WW*), made from white oak. Once again, many thanks to Peterborough Upholstery for the seat.

**Rob Winter**

*Nice work Rob – only three more diners and one more carver and you've got yourself a nice set. Hope you've still got the rod and all the templates.*

**Mark**



Here at *The Woodworker* we're always pleased to see photos of your work, and we know everyone else is as well! So send them in now and see if you can make the cut.



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**Critique of the book from Mr R A of Florida. 21 Jan 2014**  
"Without doubt, it is the most detailed and comprehensive Windsor chair construction book on the market today. Finding detailed instructions on this subject has been difficult. I have collected every book and article I could find. Your book beats them all; no contest."

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**Stanley ratchet brace**, 8in swing two-jaw model in excellent condition, with a selection of auger and flat bits; £35

**01189 712 472 (West Berkshire)**

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**01189 712 472 (West Berkshire)**

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**01189 712 472 (West Berkshire)**

**Makita MLT100 sawbench**, on moveable trolley, little used; £150

**01992 627 927 (Waltham Cross)**

**Poolewood lathe**, Variable speed, 1,219mm between centres, twin bed bars; 1hp reversible motor; £325

**01664 812 520 (Melton Mowbray)**

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**01747 838770 (North Dorset)**

**Handicraft Annual 1936**; interesting book featuring tool kits, items to make, wood and mouldings for sale etc; £28 inc P&P

**07940 704 570 (Kent)**



**Record Power lathe**, CL1 cam variable speed model with CL3B bowl attachment, two faceplates, Dakota chuck, Steb centre and some tools; £300. Buyer collects

**01483 893068 (Surrey)**

**Hardwood boards**, Indian laurel, bocote, sheoak and others. Please call for details

**0208 675 0132**

**(South-west London)**

**Pfeil palm-held carving tools**,

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**Record Power machinery** – BS300E bandsaw, PT260 planer/thicknesser, CX2600 dust collector – plus Rexon BT2502AE table saw, Draper GD13/5C drill press and Bosch GCM10 mitre saw. £1,000 the lot

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# Planed, not turned

Here's a great little project from April 1955, aimed at the beginner or junior woodworker. The table lamp is a popular and worthy subject for learning one's skills, and I suspect most of us made something similar in our woodwork lessons years ago

Although a seemingly simple design, this lamp incorporates a couple of nice little touches, which enhance its elegance while still remaining achievable. The first is the base, which, on the face of it, looks pretty tricky, what with that little step at the top of the main chamfers. This step, however, is simply a separate piece – accurately cut – which is just planted on to create the effect and to provide a visual transition or bridge from the base to the column. It's the sort of thing the ancient Greeks did thousands of years ago, and just one more demonstration of the value of studying classical architecture and its derivatives.

## Elegant touches

There's also a nice little extra chamfer around the outside edge, just where you would normally expect a squared one; this adds a further dimension of a subtle kind, but I'm viewing it as a 'serving suggestion' myself...

The most elegant part, though, is surely the tapered octagonal section of the lamp's column. This starts as a geometrically pure octagon, but effortlessly changes into a square just before it meets the base, terminating in a shouldered square stub tenon to locate in a matching mortise. If ever a job was designed to improve one's planing skills, then this is it.

## Creating the channel

All of you turners will no doubt be familiar with boring a long hole through a shaft or stem on the lathe, but this job can be achieved quite simply without any recourse to special tools or equipment. The column



is made up of two halves, both with a groove cut out and simply glued together. By clamping up with a piece of string inside, any surplus glue can be removed with ease, and the channel thus created kept clear for the electrical cable.

## A challenging task

One of the most challenging tasks will be accurately securing the brass lamp fitting;

in my experience this is rarely as straightforward as it should be. Once wired up and tested, it's just the finish to take care of to secure an attractive and functional item for the home, which should last for many a year.

*Mark*

More from The Woodworker archive next month...



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**The Woodworker**

"**Top Quality** - This is a very well made machine with full adjustment of both infeed and outfeed tables. This is unusual in a home workshop machine and allows very fine adjustment to eliminate any gouging at the end (snipe)...Results are excellent, chip clearance is good and the changeover from planing to thicknessing is quick and easy."



**DesmondW**, Online Review

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